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run on the net?

Who makes  
the sea work?

How does  
the Internet work?

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The U.S. and IT job market split into two worlds: stable public, volatile private - Page 78



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IT professionals reveal whether they will be kicking back, partying or hiding under the bed - Page 44

# COMPUTERWORLD

FEBRUARY 1-7, 1999

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"I AM MUCH MORE POPULAR WITH MY FRIENDS AT COCKTAIL PARTIES. IT'S FUNNY. YOU DO GET DIFFERENT ATTENTION NOW."

STEVEN GOLDBER, CEO OF COOLSAVINGS.COM INC., ON HOW HOT INTERNET COMPANIES ATTRACT ATTENTION TO ANYONE WHO WORKS AT ONE  
SEE PAGE 81

## AT DEADLINE

AT&T Outsources  
50 Systems Apps

Computer Sciences Corp. (CSC) will manage a portfolio of about 50 systems applications for AT&T Corp. under a \$300 million, 10-year outsourcing contract announced last week. About 100 AT&T employees will be offered jobs with El Segundo, Calif.-based CSC. The contract becomes effective next month and includes systems for telemarketing, customer support and compensation for sales and marketing.

PeopleSoft Profit  
Won't Stop Layoffs

PeopleSoft Inc. last week announced a \$30-million layoff while reporting a fourth-quarter operating profit of \$40 million, up slightly from the year-earlier \$39.5 million. The Pleasanton, Calif., applications vendor said the 4% workforce cut will clear the way to lure new employees to work on upcoming analysis and internet applications. Revenue growth is expected to moderate from 61% last year to 20% to 30% this year.

Gates Videotape  
Will Be Released

A U.S. Court of Appeals ruling Friday cleared the way for public release of the complete, 20-hour videotaped deposition of Microsoft Corp. Chairman and CEO Bill Gates. The decision means that the transcripts and videotapes taken from dozens of other witnesses in this case will also be released and that any future depositions will be open to the public, said Jay Ward Brown of Pearson Software & Koch LLP in Washington, the attorney representing the news organizations that filed the appeal.

## Short Take

After reporting that revenue between 1997 and 1998, Seattle Valley, Calif.-based INFOSYS Corp. last week said it will cut 20% of its workers and split into two divisions: *Netland.com* will sell intranets online, and *laprise* will do enterprise products.

US WEST DIALS IN  
FOR WEB APP RENTALS

Outsourcing cuts maintenance costs,  
avoids long implementations

BY JULIA KING

US WEST INC. is pulling the plug on its in-house sales applications, crossing over to the brave new world of Web-based applications outsourcing.

Beginning next month, the Denver-based telecommunications company will start to rent Seibel Systems Inc.'s sales force automation software from USInternetworking Inc. Under a three-year contract with USI, US West also has an equity investment in the Annapolis, Md.-based applications outsourcing.

USI will implement, host and manage the Seibel software, which 1,000 US West salespeople with laptop computers will access over the Internet. The software will be loaded on laptops, but the salespeople will access the USI server via an Internet-based virtual private network.

USI will deploy prototype

Seibel software to about 150 users by midmonth. And by the end of June, all 1,000 users should be plugged in and using the new software, said Sandi Miyaki, director of channel operations at US West. "The benefit of [using laptops and



having] Internet access is that salespeople can spend more time with customers and still access the numbers they need," Miyaki said.

Prior to deploying laptops to users last year, salespeople accessed the company's sales applications from office-based PCs, which meant less time on sales calls.

To date, US West is the largest of a handful of companies to rent Internet-based enterprise software applications from a growing group of so-called managed application providers. Others include Excite Inc., an Internet portal company that rents PeopleSoft Inc. financial applications from Corio Corp. in Redwood Shores, Calif.

A third company, Sunburst Hospitality Corp., a Silver Spring, Md., real estate firm with 87 hotels, signed a five-year, \$2.4-million contract with USI to provide Web-based PeopleSoft financial applications. Implementation is scheduled for April 1.

The rental programs, which are being targeted primarily at fast-growing midmarket companies, are supposed to elimi-

nate long, complex implementations and cut high software maintenance costs. They also make costs more predictable because users pay fixed monthly fees, which cover ongoing maintenance and software upgrades.

Rentals also eliminates user investment in hardware and software licenses, plus it reduces a company's need for costly and hard-to-retain in-house IT talent.

For all of those reasons, analysts say they expect the market for software rentals to take off in the next few years.

## Market Increase

Forrester Research Inc. last week said that the market for Web-based application rentals — which stood at zero just a few months ago — will reach \$6.4 billion by 2001. "I expect to see more significant deals this year," with contracts for outsourced human resources software heading the list, said Tom Gormley, a Forrester analyst.

Gormley said he expects the list of applications outsourcing vendors to increase and to include more of the software makers themselves.

So far, Oracle Corp. has announced plans to lease its software over the Net. Under partnership agreements with IBM Global Services, J.D. Edwards & Co. and Great Plains Software Inc. also rent their applications software. ■

## Geac Joins Application Outsourcing Crowd

New program offers software-only support to mainframe users

BY CRAIG STEWART

Geac Computer Corp. this week plans to join the ranks of corporate application vendors that are offering to take over management of their software from users.

But Geac's AppCare outsourcing program has a twist: The company's Atlanta-based applications division initially is targeting mainframe users who want to off-load software maintenance but don't mind continuing their own hardware support.

Rival vendors such as PeopleSoft Inc. and J.D. Edwards & Co. have teamed up with outsourcing firms that will run entire systems for users. Geac, on the other hand, is taking a

software-only approach with AppCare, which is due to be extended to its client/server applications by year's end.

That formula was fine with Rob Schwyn, administrative director of information services at Children's Hospital in Columbus, Ohio. Schwyn is one of several early users who have signed outsourcing deals with Geac, which has set up a remote-management site in Wichita, Kan.

Even though Children's Hospital is still supporting its mainframe hardware internally, Schwyn said outsourcing the financial software to Geac will free up his staff to work on more strategic clinical and managed-care applications.

The hospital also was having trouble finding workers who were familiar with Geac's software, Schwyn added. He said Geac implemented a year 2000-related upgrade of the applications that "went off without a hitch" in late December, although compliance testing is still taking place.

Transtar Inc., a railroad and shipping company in Pittsburgh, also signed on with Geac to avoid having to beat the bushes for software support workers. But Transtar will run its homegrown systems on its mainframe, and managing the hardware "isn't a problem for us," said Drew Armstrong, the company's director of MIS. ■

## Corrections

A Jan. 18 News story ("Vendors to Roll Out Centralized Security Tools," page 10) misspelled the name of one of the vendors mentioned, i.e. Pit Network Systems Inc.

A Jan. 25 News story ("Y2K Crunch Time Is Here for Retailers," page 10) provided an incorrect last name for Dennis Green, who is the senior vice president of logistics at Dayton Hudson Corp.'s Macy's; a California department store chain.

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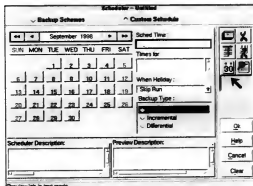
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# HP LINUX SERVER PLAN FAILS TO EXCITE USERS

Open-source system gains credibility, but users say it's 'just another IT choice'

BY DAVID GREENSTEIN

**D**ESPITE the frenzy of rumors surrounding Linux this month, users met the first announcement by a major server vendor of full support for the open-source, Unix-based operating system with a mix of shrugs and smiles.

Though Hewlett-Packard Co.'s newfound support for Linux should increase its acceptance in corporate America, users and analysts said the Unix variant has become no more than another IT choice.

"It certainly got promoted to being a contender," said Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass. "It is a true IT choice."

Palo Alto, Calif.-based HP last week said it will sell servers with a version of Linux from Red Hat Software Inc. in Research Triangle Park, N.C.

By dialing either company's support line, customers can ask HP about the hardware or Red Hat about the software. HP also promised to port Linux to the forthcoming IA64 (Merced) processor.

## Compaq's Plans

Despite a flurry of reports in the past few weeks in several national business and information technology publications, an official at Compaq Computer Corp. said last week that the Houston company has no plans to strike a service-and-support deal anytime soon. Instead, Compaq is making its servers Linux-compliant by having Linux drivers for Compaq's hardware (see chart).

But Enderle said Compaq and IBM will likely follow suit with announcements similar to HP's in the next few weeks.

Both companies said only that they will try to meet customer demand.

But some users shrugged off reports of vendor support, saying they see nothing compelling about Linux.

For example, employees at AmeriServe Food Distribution Inc., a Fortune 500 company in Addison, Texas, are comfortable with IBM's AIX Unix on the high end and Windows NT on the low end, said AmeriServe's CIO Bruce Graham. "We've got no reason to not continue with that," he said. "[Linux] hasn't hit our radar yet."

Richard Mader, CIO at Boston's Department Stores Inc., a \$1 billion-plus retailer in Reading, Pa., was similarly unimpressed. Linux lacks the breadth of applications available for NT, he said.

Still, there has been growth. From a tiny installed base last year, small-scale Linux deployments have grown quickly in

## Linux Menu

Vendors' offerings for Linux servers

VENDOR	OFFERS LINUX
<b>HEWLETT-PACKARD</b> Announced partnership with Red Hat last week	YES
<b>IBM</b> Sells an emerging Linux market but wants less customer demand	NO
<b>SUN MICROSYSTEMS</b> Ported Linux to SPARC in December Resellers can bundle if they desire	YES
<b>COMPAQ COMPUTER</b> Testing, writing drivers to ensure that servers are Linux ready	NO
<b>SILICON GRAPHICS</b> Told analysts last week that Intel-based Linux servers are on road map	YES
<b>DELL COMPUTER</b> Only by request. Red Hat this week will certify certain workstations and servers	YES
<b>GATEWAY</b> Has no current plans, is evaluating market	NO

SOURCE: COMPUTERWORLD RESEARCH

mainstream corporate environments, according to International Data Corp. (IDC) in Framingham, Mass.

Red Hat's shipments have

grown by 200% since last year, said William Peterson, an analyst at IDC.

Among the Linux faithful, news of major vendor support was warmly received.

For example, Gannett Co.'s

Offset Telematch data-processing unit uses Red Hat Linux as a Web server and for E-mail, firewall and file-transfer services, said Frank Clay, IT manager at the Springfield, Va., unit. The company plans to host data on Linux.

Clay praised the emerging corporate support model for Linux, which traditionally has required firms to be self-sufficient (see story on page 4). "It would be nice to be able to pick up the phone and call just a single point," he said.

Tony Pinto, information systems manager at Mississauga, Ontario, agreed. "That's one of the key things for Linux," he said. The company uses Caldera Systems Inc.'s OpenLinux for an E-mail, Web proxy and electronic data interchange server. ▶

## CIOs Fear Added Burden of Medical Privacy

On top of Y2K, Clinton's call for policy in 1999 pushes health care IT to wall

BY BARR COLE-DONOLUKI

Already facing tight budgets and year 2000 deadlines, health care information technology departments were dealt another blow recently when President Clinton announced that legislation on medical records privacy would be handed down this year.

Most health care systems departments were aware that laws pertaining to privacy were in the works. The Health Insurance Portability and Accountability Act of 1996 gave Clinton the power to act on the issue if Congress didn't do so by the middle of this year.

However, other parts of the

1996 act have stalled and many in the health care community expected that the 1999 deadline for legislation on the privacy of medical records would slip, too.

"The general thinking was that [the laws regarding privacy of medical records] would purposely be delayed until

election and communication at the College of Healthcare Management Executives, a Chicago-based group of more than 700 health care CIOs.

Some said the timetable could still slide. That probably would be a welcome delay for health care providers, who are bogged down with year 2000 work. "There's no way most hospitals could tackle this issue this year," Fraidenburg said.

Clinton's remarks, made during his Jan. 19 State of the Union address, called on Congress to pass legislation this year. If it fails to do so by August, he said he would act on the issue. "One way or another we can all say to the American people, we will protect the privacy of medical

records, and we will do it this year," Clinton said.

IT managers said privacy laws are key in preserving the trust that patients have in health care providers, but they



"ONE WAY or another... we will protect the privacy of medical records, and we will do it this year."  
— President Clinton  
State of the Union Address

are concerned that the rules could mean major modifications to existing systems. Just how much work will be involved when the privacy rules come down remains unclear.

Some hospital CIOs speculated that the law would require increased security — beyond the current user IDs and passwords — on PCs and files. It might also require a hospital to put additional safeguards on any patient information stored on a Web server, they said. In the meantime, there isn't much that health care providers can

do to prepare. The regulations "are so fluid that it wouldn't make sense to make any moves on it at this point," said Will Weider, CIO at Trinity Medical Center in Rock Island, Ill.

Ann Sullivan, senior vice president and CIO at Maimonides Medical Center in Brooklyn, N.Y., said the message he heard on Jan. 19 was "This is coming, so get yourself ready."

For Maimonides, that means hiring two security experts in the next month and thinking about the implications of privacy legislation when constructing electronic patient records. ▶



"THE PROPOSED regulations 'are so fluid that it wouldn't make sense [for health care providers] to make any moves on it at this point.'  
— Will Weider  
CIO, Trinity Medical Center

mid-2000 or 2001 in order to give [health care providers] a chance to wrap up on year 2000 work," said Keith Fraidenburg, director of edu-

## MOREONLINE

For health care and information technology resources, including documents and Web sites on medical records and privacy, visit our Web site:  
[www.computerworld.com/resources](http://www.computerworld.com/resources)

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## BRIEFS

Redmond Backs  
Down on Temps

Responding to a federal judge's orders, Microsoft Corp. in Redmond, Wash., last week agreed to reward its contract for temporary personnel. Critics charged that by signing the original contract, temporary workers were giving up their rights to employee benefits that might be awarded in a pending class-action lawsuit brought by a group of temps. Microsoft employs about 6,000 temporary workers.

Microsoft Ordered  
To Supply Data

Separately, in the antitrust case, U.S. District Judge Thomas Penfield Jackson last week ordered Microsoft to turn over a Dynamic Link Library analysis the government claims may undercut the company's contention that Internet Explorer can't be separated from the operating system. A Microsoft engineer wrote in an E-mail that his findings "may not be useful" to the company's case.

Trademark Use in  
Searches Disputed

Three subsidiaries of Estate Luster Cos. in New York have sued search engine company Excite Inc. and Web retailer Fragrance Counter Inc. over the Web retailer's purchase of search-engine advertising keywords for Estate Luster brands.

That means search results used Internet users to Program, an unaffiliated sister of Estate Luster products.

## Short Takes

Dollar-based COMPUSA INC. plans to offer downloadable software for sale on its commerce site. ... The Texas legislature is considering legislation that prohibits the sending of unsolicited E-mail and makes domain name forgery a crime. Similar legislation is being drafted in Maryland. ... PLANT CONSULTING INC. in Waltham, Mass., is implementing SAP AG's R/3 software at Suburban Vapors. The Somers, Conn.-based winery's project is expected to take seven months.

ERP USERS LINKING E-MAIL  
TO BUSINESS FUNCTIONS

*Companies see benefits of tying familiar front ends to HR, business partner apps*

BY ROBERTA FUSARO

**S**OME FABA companies are considering linking their messaging clients and servers to enterprise resource planning (ERP) applications to give end users access to isolated financial and employee data.

Several users at last month's Longshore '99 conference said they're linking ERP systems with Lotus Development Corp.'s Domino servers to create self-service human resources applications. For instance, American Express Co. plans to link Lotus Notes to the front end of its recently purchased PeopleSoft Inc. human resources system, said Larry Blomquist, a developer at Phoenix-based American Express Technologies, the technology arm of the travel services company.

"We have so many Notes applications already that rely on [the directory]. But we want to create a one-stop shop for any kind of HR-related changes," Blomquist said. Instead of filling out a paper form to indicate changes, an end user

would be able to make changes online using a Notes-based form. That's expected to "cut down the lag time and improve accuracy of the changes," Blomquist said.

Analysts said using messaging front ends tied to ERP applications also could be useful in managing business partner relationships such as those with customers or suppliers. Analysts said they hadn't gathered statistics on that trend, however.

## Good for End Users

Carl Merrill, manager of collaborative computing at Becton, Dickinson & Co., a Franklinburg, N.J.-based medical and diagnostic systems manufacturer, said his company is simultaneously rolling out SAP manufacturing and Lotus Notes applications across 10,000 desktops and is considering linking the two for some human resources functions. "Especially for end users who aren't as computer literate, it makes sense to have one common interface," Merrill said.

Lotus has taken the lead in

tackling a user-friendly front end to ERP systems—forming alliances and providing Domino server connectors to systems from vendors such as Lawson Software and PeopleSoft.

Microsoft Corp. and Bann Co. recently announced an initiative that lets Microsoft install ERP on its desktops at \$99 per seat.

Users said they're ready for

those kinds of connections.

For instance, DHL WorldWide Express is investigating using its Exchange Server and its Lightweight Directory Access Protocol server as a link to its ERP systems, said Alan Boehme, director of business planning at DHL. For example, DHL could draw on its ERP system and directory to alert the mail server to push E-mail messages with order and delivery information to its clients.

Boehme envisions the combination as a supplement or replacement for standard electronic data interchange and messaging systems. He said DHL saves \$1 on each shipment taken electronically instead of using paper forms.

The ERP/messaging link is also effective for customer relationship management "because you can give your customer direct access to core services," through an E-mail message, said Eric Woods, an analyst at London-based Ovum Ltd. ■

We want to  
create a one-  
stop shop for  
any kind of HR-  
related changes.

LARRY BLOMQUIST, DEVELOPER,  
AMERICAN EXPRESS  
TECHNOLOGIES

## IBM Upgrades its MQSeries

*Scalability boosts processing, integration*

BY DAVID ORNSTEIN

IBM last week announced plans to release new versions of its MQSeries messaging middleware products that the company said will give users more scalability for data transport and application-integration tasks.

One of the improvements to Version 5.2 is better support for load balancing among multiple, distributed servers. A new version of MQSeries for the S/390 mainframe operating environment also takes greater advantage of the machine's processing power, said William Keedy, vice president of marketing for transaction systems at IBM.

To test the benefits of such messaging middleware, State Street Bank, which handles securities trades for institutional investors, has beta-tested the new MQSeries 5.1, said Russ

Hartman, senior systems officer at the Boston-based bank.

The bank processes 125 million messages per day as trades are ordered, executed and confirmed, Hartman said. The bank is participating in the securities industry's efforts to provide "straight-through" processing for trades with as little delay as possible.

As State Street Bank has replaced its homegrown messaging infrastructure with MQSeries, the commercial package has performed at par or better, Hartman said—and MQSeries has been easier to use.

MQSeries integrator, which lets users integrate applications using business rules to define the overall process, lets the company fix trades that are missing key data automatically instead of manually, he added. ■

Two ThinkPad Versions  
To Get Embedded Security

BY SHARON SAUDIN

IBM is adding security technology to two of its ThinkPad notebooks that should help companies track them and secure the information inside if they're lost or stolen.

IBM announced last week that it's embedding Asset ID, which it made available last year for its desktop PCs, to its ThinkPad 770Z and ThinkPad 600E Laptops.

Asset ID is essentially an antenna that reports the machine's location to a home-based scanner.

The notebook won't work if

it isn't seen by that scanner. Particularly important is Asset ID's ability to prevent someone from accessing the system if it's stolen, said Eric Hemmendinger, an analyst at Aberdeen Group Inc. in Boston. "In a biotech company, let's say, there are researchers or developers carrying these machines, and the information on there is far more valuable than the machines themselves."

The ThinkPad 770Z has a list price of \$4,799. The ThinkPad 600E has a list price that starts at \$2,999. ■



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# TRIAL: WHAT NOT TO DO

**Microsoft testimony highlights risks posed by not having a corporate antitrust policy**

BY PATRICK THORNDIKE  
WASHINGTON FILE

**B**EFORE TAKING the witness stand to defend his company against antitrust charges, Microsoft Corp. Group Vice President Paul Maritz tried to do his homework.

But he was still unprepared for a simple question asked last week by David Boies, the lead government attorney.

Does Microsoft have any

written antitrust guidelines? Boies asked.

"If there are, I haven't seen them," Maritz said.

Experts say companies need policies that explain to their employees the legal implications of everything from antitrust law to E-mail usage—but most companies don't. Antitrust and E-mail "policies are critical yet surprisingly lacking at even the most sophisticated companies," said Hillard Sterling, an attorney at Gordon &

Glickson PC in Chicago.

One exception is Kraft Foods Inc. It uses a combination of tools, printed materials, occasional E-mail reminders, videotapes and an intranet site to ensure that its employees are aware of the legal implications of what they might write in E-mails or say during meetings with competitors.

"Our goal is not just to avoid being caught doing something wrong, but to avoid doing something wrong in the first place," said Theodore Banks, associate general counsel at the Northfield, Ill.-based firm. Legal compliance training is tailored to individual jobs at

AT THE TRIAL  
**Jim Allchin**



Who is he? Microsoft senior vice president. Focus of testimony: Will he defend Microsoft's decision to integrate Internet Explorer with Windows?

He also will argue that the decision wasn't made to crush Netscape Communications.

Kraft. Sales force members, for example, receive training on antitrust laws so they don't talk to competitors about pricing inadvertently or otherwise, Banks said.

Conversely, Microsoft has been providing the business community with lessons not only on the risks posed by E-mail, but also from notes tak-

en by competitors at meetings and comments made in public and on the press.

On the witness stand, Maritz didn't come off as someone who had threatened to "cut off Netscape's air supply" or "embrace and smother" the company—comments attributed to him in press reports and by Intel Corp. executives.

Maritz didn't respond to the relentless questioning by Boies with the bravado or swagger that seems inherent in many Microsoft documents. Instead, Maritz showed little emotion, denying saying anything that would suggest he wanted to asphyxiate Netscape Communications Corp.

Boies used remarks attributed to Maritz to add weight to government claims that Microsoft, either through favors or threats, sought to reduce the platform competition it saw coming from Netscape, Apple Computer Inc. and Intel. ■

## ERP Needs Software Change Management

**Mainframe users warn that 'non-intuitive' process needs a push**

BY CRAIG STEPHAN

When Algonia Steel Inc. began installing ERP applications, most of its users weren't too familiar with the concept of tightly controlling changes to the software. But that soon changed.

Like many other companies that are moving on up from homegrown or heavily customized mainframe systems to enterprise resource planning (ERP) packages, Algonia quickly got serious about managing the software-modification process.

That boiled down to the largely manual job of setting up rules and then convincing workers of the need to follow them, said Gary Disano, project manager for a rollout of PeopleSoft Inc.'s finance and human resources applications at the Canadian steelmaker.

The importance of closely controlling and documenting all modifications to the software "isn't really intuitive," Disano said. "Even most of us [on the project team] didn't ap-

preciate it until we went through our first implementation."

For workers rushing to meet tight ERP deadlines, change control can seem like a big roadblock, said Disano and other project managers. But it's a vital part of ensuring that the applications work as expected and don't blow up when upgrades are installed, they added.

"We want to make sure this is looked at as an integrated system and changes aren't being made in isolation," said Gary Peterians, project manager for a rollout of SAP AG's R/3 suite at Hoechst Inc. Rousset Inc.

To make that happen, Peterians said, the Kansas City, Mo.-based pharmaceutical company created a change review board made up of 10 business and information technology workers versed in different R/3 modules and third-party applications that were tied to the SAP software.

Algonia, in Sault Ste. Marie,

Ontario, assigned a senior technical member of each team working on a PeopleSoft module to act as a "database custodian," Disano said. Their job: to make sure all modifications are documented in project folders blind to the applications.

### For Options

Michael Barnes, an analyst at Horwitz Group Inc. in Framingham, Mass., said ERP vendors provide "rudimentary" change-control features. And third-party products are available only from companies "that definitely aren't household names," he added.

For example, Chain Link Technologies Inc. in Sunnyvale, Calif., next week plans to announce an upgrade of its year-old change management and deployment software that works with multiple ERP systems. Until now, it has focused mainly on users of Oracle Corp.'s applications.

Neopost Inc., a Hayward, Calif., maker of postage meters, was one of Chain Link's earliest users. The amount of software modifications being done at Neopost "skyrocketed" when it began migrating from a homegrown system to Oracle's financial package, said IT manager David Beckman. ■

## Microsoft Considers License Option to Save Users Money

BY KIM S. NASH  
AND SHARON GAUDIN

Microsoft Corp. is contemplating a new software licensing option for Internet service providers that could eventually trickle down to corporate customers and save them money, Microsoft currently lets Internet service providers and other Internet-related companies buy subscription-style licenses for its Web server software. Those licenses are based on a per-server fee rather than the per-user fee that is typical with most other Microsoft products.

But some Internet service providers recently asked Microsoft whether the subscription plan can be extended to BackOffice products such as the SQL Server database.

"We're still in... discussion mode" on the idea, said Peter Bitt, general manager of worldwide licensing at Microsoft.

The software giant may start testing the plan with a few select Internet service providers in the coming months—but not the next two, or it could be three or six [months] or a

year from now," Bitt said.

If that happens, and if corporate customers then ask Microsoft for a similar deal, the company could extend the option to them, he said.

That could mean lower overall costs because users wouldn't have to buy end-user licenses—client access licenses, in Microsoft parlance—for each user.

"That is very interesting," said Robert Forbes, online technology manager at First Tennessee National Corp. "That would reduce our costs quite a bit... especially as our servers get larger and can support more workload." Forbes said he has 300 Windows NT servers and about 1,200 users running Microsoft Exchange.

But Bitt cautioned that "we don't have any plans on the drawing board to do that [subscription licensing]. We don't know if there's demand... but we are listening."

Dan Kusnetzky, an analyst at International Data Corp. in Sarasota, Fla., said Microsoft's corporate customers shouldn't expect a change any time soon. ■

### JUST THE FACTS Change Your Ways

**The problem:** ERP systems usually require rigorous change management that homegrown applications lack.

**The reason:** Companies integrate and the need to be prepared to adapt ERP upgrades.

**The solution:** Many manual procedures by now, although some software is starting to become available.

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## BRIEFS

## Microsoft Gets Java Compatibility Delay

Microsoft Corp. last week won four extra months to ramp up products that use Java to comply with Sun Microsystems Inc.'s specifications. In November, a federal judge in San Jose, Calif., ordered Microsoft to make all its Java products meet Sun's rules by Feb. 15. Microsoft now has until June 15, but after Feb. 15 it can no longer ship any noncompliant Java-enabled machines that overruns an already installed one.

## Judge Orders Stop On Spam Filter

Online gaming card company Blue Mountain Arts in Boulder, Colo., has won a preliminary injunction against Microsoft Corp. over a spam filter in the latest beta version of Microsoft's Outlook Express (Internet Explorer 5.0 Beta 2). A California Superior Court judge last week ruled that Microsoft shouldn't ship a filter that sends notices for popular Blue Mountain electronic gaming cards into a "junk mail" folder.

## Firm Discovers Computer Worm

A Helsinki, Finland-based data security firm last week warned that users about a computer worm called Houdini. The worm can send hundreds of copies of itself to the same addresses and E-mail addresses to which a user is posting or mailing. According to Data Forensics Inc., the worm won't destroy computer files, but could slow down or crash corporate E-mail servers. A patch is available at [www.dataforensics.com](http://www.dataforensics.com).

## Short Takes

MCI WORLDWIDE INC. in Jackson, Miss., will offer nationwide Digital Subscriber Line services for businesses starting in March. . . . QTE CORP.'s QTE Internationalizing in Stamford, Conn., has introduced its IP Fax service that lets business users send and receive faxes at their desktop using the QTE network and servers.

## JUNK-BOND SYSTEM TO DEBUT ONLINE

## Start-up will offer near-instant pricing

BY SHARON MACNICHOL  
FINANCIAL SERVICES start-up has begun rolling out a new Internet-based trading system aimed at bringing near-instant pricing information to the junk-bond industry.

Although stock quotes have become ubiquitous in recent years, there is less real-time pricing available for bonds. In fact, when institutions want to sell a big block of high-yield bonds, they often end up phoning a few traders to get a likely

price range. About 170 institutions, including 90 of the top 100 bond purchasers, have committed to trying the Bond-Link system developed by Trading Edge Inc. in Santa Monica, Calif., according to Trading Edge Chairman and CEO Murray Finebaum. All the systems should be in place by March.

"It's a big shift in the way people will do business," said Bradley Levie, president and chief operating officer of Trading Edge.

"They're going after one of the most inefficient [financial] marketplaces," said Gary Craft, an analyst at BancBoston Robertson Stephens Inc. in San Francisco. "There's a lot of opportunity."

Buyers and sellers will be able to post bids on the BondLink system anonymously — a major attraction in an industry where institutions are loath to tip their reveal investment strategies — and see all the transactions to



Trading Edge's Bradley Levie. System represents "big shift."

## Pentium III Raises the Bar

## Intel says new chip capable of 1-GHz speed

BY APRIL JACOBS

Chip maker Intel Corp. outlined its latest processor strategy last week, including its plans for the Pentium III, its new 0.18-micron manufacturing capabilities and why it's choosing to stick with aluminum vs. copper-circuit technology.

Intel said it plans to ship its newest chip — the Pentium III, based on its 0.18-micron manufacturing process — by April. The company's Pentium II chips are based on 0.25-micron technology.

At one-millionth of a meter, the micron is the unit of measurement used for the width of the circuits in a chip.

Narrower circuitry allows smaller chips, which emit less heat. That in turn lets the chips run faster without overheating.

The Pentium III will debut at 500 MHz, but Intel demonstrated processing speeds of 900 MHz at the announcement. It estimates that its latest process can carry it up to 1 GHz.

Intel said its 0.18-micron manufacturing process will put it six months ahead of competitors such as Advanced

Micro Devices Inc. in Sunnyvale, Calif., that still use 0.25-micron technology.

But IBM also has switched to 0.18-micron technology in the PowerPC 750 processors used in its Unix workstations and Macintoshes.

Intel has faced stiff competition in the desktop market this past year, with AMD grabbing

significant market share in the sub-\$1,000 PC market. Roger Kay, an analyst at International

Data Corp. in Framingham, Mass., said Intel's technology lead over AMD will only be temporary, but it will give the company the advantage of having the high-end Windows PC market to itself.

Intel also defended its decision to continue using aluminum-wiring technology in its processor transistors.

track market pricing.

Why such a difference in trading stocks and bonds? It's partly complexity. One share of IBM common stock, for example, is pretty much like another. But bond issues need to be identified by term, maturity date, yield, ratings and so on. There are now about 30 electronic bond trading systems in various industry sectors — many sponsored by dealers or for auctioning new bond issues — up from a dozen a year ago, according to a study by The Bond Market Association, an industry group in New York.

Association Vice President P. Anders Nybo said he used to think such systems would replace phone calls and faxes.

Now, however, he believes institutions will continue to want the personal service of a dealer, especially during volatile markets when Web systems can get overloaded. ■

Copper has less resistance than aluminum, allowing it to be used for faster circuits.

IBM is using copper circuits in its current 333-, 350- and 400-MHz PowerPC 750 processors, which may run at 1 GHz this year.

Intel said it won't use copper until the process equipment becomes more mature, which is likely to be when it can deliver 0.13-micron technology. ■



## Intel Turns Off Serial ID Feature - But Not Critics' Wrath

Following an outcry from privacy advocates, Intel Corp. switched gears last week on its chip-based serial-number security strategy (CW, Jan. 26) — but not all the company's critics were satisfied.

At least one group, the Electronic Privacy Information Center (EPIC) in Washington, said it will continue calling for a boycott of Intel products until the new Pentium III feature is removed.

Intel said last week it will ship its processor-based serial identification feature in a default "off" mode so users would have to turn it on to make it work instead of automatically enabling it.

U.S. Rep. Edward Markey (D-Mass.), who had written to Intel expressing concern about the Pentium III and privacy issues, is satisfied with Intel's response, said Colin Crowell said. However, Markey also believes the incident points to the need for national privacy legislation for the Internet instead of dealing with these issues on a company-by-company basis.

One observer said he believed that software vendors or Web sites still could find a way to use the ID

number without a user's consent. "We don't think the pitch is going to work," said Marc Rotenberg, EPIC's director.

The hardware-based serial number lets a PC be identified for overall security purposes, but Intel was promoting it as a way to make electronic commerce more secure by validating a user's identity against the PC used to access the site.

Roger Kay, an analyst at International Data Corp. in Framingham, Mass., said he thinks business-to-business electronic commerce will benefit from the chip-based identification.

Larry Gordon, manager of technical services at Watson, Ontario-based Brewster Retail Inc., said the serial number feature could be useful when doing business over the Internet.

But he added he's pleased that Intel made the decision to change the default status of the serial number to the "off" position, noting that companies have to make their own decisions when it comes to security features.

— By Sharon MacNicol and April Jacobs



Year 2000 Strategist

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## FEDEX PILOTS EXPECT RELIEF

*Scheduling software may gain 'humanness'*

BY STEWART OCK

**T**he scheduling software that has caused consternation within the Federal Express Pilots Association union will likely get some adjustments if the pilots vote to approve a new contract this week.

If the contract is ratified, the system will probably be adjusted to make its guidelines less strict and make more practical and feasible schedules for the pilots.

When Federal Express Corp. implemented the scheduling

software from Mootreal-based Ad Opt Technologies last May, it thought the pilots would welcome it the same way fliers at Trans World Airlines, Delta Air Lines and Air Canada had.

### Where Am I?

But when the pilots began receiving their "newly optimized" schedules, the union was galvanized to take action [CW, Oct. 26]. The system ended up sending pilots on circuitous and head-spinning routes that they found physically exhausting.

If the union contract is approved, a new Scheduling Improvement Group will be set up with two pilot and two company representatives who will meet each month to work out final adjustments to the sched-

uling, said Bob Clement, a union spokesman.

"We want to make sure [the system] has some humanness in it," Clement said, adding that FedEx pilots took more sick days because of the scheduling system.

A FedEx spokeswoman acknowledged in November that the system didn't roll out quite as it had been planned and said the pilots' concerns were being addressed. The company declined to comment before the contract vote this week.

"We've all learned a lot from this experience," said Tom Irvan, Ad Opt's CEO. "We've learned how important it is for companies to communicate with the unions and pilots as to how [this software system] will be put in place, how things may change and how it could affect the pilots' lives."

Irvan said he would urge future users of his scheduling packages to work with their staff and "caution them that this works only with the co-operation of labor and management, understanding together how the status quo will be affected." ■



## Y2K GETS LOTT'S ATTENTION

Senate Majority Leader Trent Lott, (R-Miss.) told members of the U.S. Chamber of Commerce last Wednesday that within 10 days of the end of the impeachment trial, "we're going to make the members all sit down and we are going to get a report" about the status of year 2000 computer readiness. He promised the trial would be over in "two weeks at the most," but put Y2K among a list of priorities that include pay raises for military personnel and a bill designed to encourage innovation in teaching.

## Delta's Web Surcharge Grounded

BY TOM DIEHRMICH

Just two weeks after the idea surfaced, Delta Air Lines has done away with a controversial \$1 surcharge on tickets not booked through its Web site.

In a statement last week, the Atlanta-based airline said, "The market spoke, and we responded. Delta will offer no further comment on this."

When it announced the fee on Jan. 12, Delta said the surcharge was instituted to "offset rising distribution costs." Those expenses, which exceeded \$1 billion in fiscal 1998, included computer-reservation booking fees, credit-card fees, travel-agent commissions and other costs, according to the airline.

"The consumer is the big winner in Delta's decision to withdraw the surcharge ... [which] was perceived as very punitive in nature against 90% of the people who book their airline tickets," said Steve Loucks, a spokesman at the American Society of Travel Agents, which is based in Alexandria, Va. ■

Continued from page 1

## Jini at FedEx

held device to help facilitate direct communication. The company expects that customers eventually will have Jini-enabled devices available on the market. Internally, FedEx expects Jini to prove help with asset utilization.

The Jini can be passed to the available or most appropriate computing, storage or printing resource on the network.

### JUST THE FACTS

## Jini at a Glance

### What is it?

• Jini-based networking software created by Sun Microsystems that enables devices to start working together and sharing resources (such as storage and printing) as soon as they're plugged in to a network

### How does it work?

• The device broadcasts its presence in the network as Jini code

• A backup service on the Jini server keeps track of what devices are on the network and what services can be accessed

• Proxy code moves from device to device, telling one device how to use another. For instance, proxy code might instruct a printer to print

For instance, using Jini, international shipping information stored in a Memphis server could be plucked for printing at a remote FedEx office.

"It's really about not having to be tied to the physical device that I've got in my hand or on my desk in front of me — but also making the computing resource on the net available to solve problems," Carter said. Jini could prove helpful with server resources. FedEx's processing tends to happen in "bursty patterns," with "mad rushes of package data" flooding the system during the holiday season or near the 10:30 a.m. package delivery time. Carter said, "It would be very nice for us to be able to distribute the computing workload across the network," he said.

Sun staged Jini's official launch last week in San Francisco, announcing roughly three dozen vendors that plan to work with the technology. But plans from many of the companies were sketchy. ■

### MORE ONLINE

For Jini white papers, specifications, articles, news and a FAQ, visit our Web site: [www.computerworld.com/news](http://www.computerworld.com/news)

## Network Managers Get More Flexibility From Cisco

*New switches tackle backbone traffic jams*

BY BOB WALLACE

Cisco has added to its latest backbone network congestion, but the new managers build versatile and flexible networks.

Companies can use the new Cisco Systems Inc. Catalyst 6000 switch line to support special telephones, extend Gigabit Ethernet link limits from 5 to 100 kilometers and build ultrafast pipes to eliminate backbone network congestion.

"As you deploy faster and faster technologies out to the desktop, you end up needing much more bandwidth in your backbone switches," said Esmeralda Silva, an analyst at International Data Corp. in Framingham, Mass.

One Cisco switch feature, Gigabit EtherChannel, enables network managers to combine eight 1G bit/sec. pipes into one 8G bit/sec. megapipe, which

can be used to wipe out traffic jams between switches in backbone networks.

"We didn't have traffic jams, but the writing was on the wall that one Gigabit Ethernet pipe between switches would not cut it," said Ted Sopher, network manager at Lawrence Berkeley National Laboratory in Berkeley, Calif.

The new Catalysts, like the existing 5000 and 5500 lines, have software that lets users plug in phones and run telephone calls over their LANs. They were designed to replace widely used private branch exchange (PBX) systems.

At last week's ComNet '99 show, Cisco CEO John Chambers underscored the importance of moving from PBX to voice over LANs. "Circuits are the dinosaurs of the past," he said. ■



2000



# Toshiba jumps to server market

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# HIGH-TECH STUDENTS FIND CLASSES FULL

Computer science enrollment up 40%; colleges short on space, money

BY BARR COLE-BOWLSKI

**A**T A TIME when the U.S. is desperate for information technology workers, many colleges are struggling to accommodate all the students who are interested in computer science.

Universities are facing tight budgets, limited classroom space and a shortage of professors and teaching assistants. Among the Computing Research Association's 175 member schools, undergraduate enrollment in computer science and computer engineering last fall was more than 9,200, up 40% from the previous year.

According to the Washington-based group, about 1,000 schools offer these majors. "Just about all of them are having the same issues" of overcrowding in the computer majors, said Bill Aspray, the group's executive director.

"There are only so many computer science labs and faculty members," said Harris Miller, president of the Information Technology Association of America, an industry group in Arlington, Va. "Even if they wanted to, very few universities can turn on a dime," Miller said. Because schools can't easily grow their computer education programs, companies will have to continue to

look beyond campuses to recruit IT labor, Miller said.

At public universities, the issue is often money. For instance, Georgia Institute of Technology in Atlanta came close to implementing enrollment caps for computer science and computer engineering majors recently but was able to secure additional funding at the end of last year. Still, computer science classes designed for 40 students are now brimming with 80 or 90.

## Trying to Meet the Demand

At the University of California at Chico, IT classes are filling up fast, locking many students out of courses. The school hired three IT professors last year and is looking to hire another this year. Politics also plays a role, observers said. Relying on computer sci-

ence often means scaling back another department.

Pittsburgh-based Carnegie Mellon University has always had enrollment caps for computer science students, but it raised that cap as more students sought the major. "It's getting harder to do that now due to physical and staffing limitations," said Allan Fischer, associate dean for undergraduate education for computer science.

The school is piloting a program to deliver Internet-based computer science courses at community colleges and companies. Fischer said employers applaud such programs "because right now, most of them are more concerned with skills than credentials."

Observers said such creative techniques will be required to educate the current crop of computer science students.

Indeed, several four-year colleges have started offering IT certifications that may include a handful of classes that can be taken in the evenings or on weekends. The New York Institute of Technology last week opened its Center for Business Information Technology in Manhattan, where students can become certified in Windows NT administration, for instance, in about a year.

Allowing students to quickly earn certification in a specific

## Welcome to The New School

Carnegie Mellon University has announced the nation's first business master's degree program in electronic commerce. A move that observers said has shaken the creation of more such programs.

The one-year program - to start in May - is a mix of business and technology courses and is aimed at training students to use electronic commerce to sell and trade products and services, according to the Pittsburgh-based school.

"This kind of program will eventually be required," said Capen Jones, chief consultant at Artemis Management Systems Inc. in Burlington, Mass. "It's much needed. Jones said. It's time we had some structure in the way we approach business on the Web and Internet," he said. — Barr Cole-Bowlski

## Coping During Deregulation

Utility CIO's top priorities include Y2K

**Cheryl Smith**, 47, the new CIO at KeySpan Energy, is no stranger to deregulation. Her experience in managing "deregulated systems" at Bell Atlantic Corp. is one of the reasons the Brooklyn, N.Y.-based gas and electric power company hired her in November.

In her first interview since starting her new job, Smith (cmib@keysenergy.com) told Computerworld senior editor Thomas Hoffman about her charter at KeySpan, which was created by the merger of Brooklyn Union Gas and Long Island Lighting Co.

Q What are the similarities between deregulation in the telecommunications and utilities industries?

A The situations and issues are almost identical, such as allowing a whole set of new players into the industry. There are some differences: telcos didn't have [power] generation plants. [But with] all of the systems issues, such

as allowing companies to use some of your systems and adjusting features and functions, the similarities are amazing.



**KEYSPAN CIO Cheryl Smith** says she's comfortable talking customers the company will be ready for 2000.

Q What are your top priorities?

A [First,] we have agreements with LIPA [the Long Island Power Authority] to manage their systems for them.

No. 2 is Y2K. We recently had an independent auditor come in and look at [our sys-

tems], and we got a very favorable review. But you don't want to take your eye off [the project].

The third priority is bringing the two companies together. We're looking at each application and determining which is best to reduce costs so we don't have multiple maintenance groups. We want to do it in a way that allows us ... some flexibility as we merge or acquire other partners.

Q What's KeySpan's year 2000 status?

A The plan on the books is for us to be finished [fixing and testing] our IT and infrastructure systems by June. We have plans to test with other companies, including an industry test among New York energy companies beginning in April.

Q Do your neighbors and friends pest you about KeySpan's Y2K readiness?

A Most of the questions I get from folks are, "Who is KeySpan Energy?" and what do we do.

As for year 2000, I can look them in the eye and say pretty comfortably: Yes, you will have heat. —

skill should help the school churn out more qualified IT workers.

It should also help the college solve its swelling enrollment problem, which forced it to rent an additional 40,000 square feet of prime Manhattan real estate last year. —

## Oracle Tool Kit to Help Trim Costs Among Oil Companies

BY STEWART DECK

Oracle Corp. last week unveiled packaged tools designed to assist the oil exploration and production industry. The package, called Project Synergy, is based on Oracle's forthcoming Oraclei database and is supposed to help smooth collaborative data-sharing projects among oil companies.

It will include specific oil industry data models and will be built on open standards established by the Petrochemical Open Software Consortium, a worldwide consortium of 125 energy companies.

Collaboration and information sharing can trim costs 20% to 25% in the oil industry, said Thore Langeland, manag-

er of CyberOrg architecture at state-owned Norwegian Statoil. "Scandinavia's largest crude oil retailer," Project Synergy will ... become a major contribution to cost reduction," he said.

"Keep in mind that 50% of Oracle's revenue comes from services, and they, like every software vendor, have learned that customers are interested more in solutions instead of just software," said Herb Edelstein, an analyst at Two Crows Corp., a Potomac, Md., consultancy.

Oracle's new offering will certainly benefit the oil industry, and it will also help the company sell more Oraclei packages, Edelstein said. —

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# CONGRESS SEES E-MAIL FLOOD DURING TRIAL

*Traffic spurs upgrade; members still reply via U.S. Postal Service*

BY ROBERTA FUSARO

**F**IVE LAWMAKERS last week said they're getting more E-mail as a result of the Clinton impeachment proceedings, but Capitol Hill systems and processes for handling those messages haven't changed much.

In recent weeks, E-mail traffic routed through a central congressional server has risen to as many as 1 million messages per day, compared with an earlier average of about 80,000.

Although the Senate added an extra E-mail server to handle the increased traffic after the release of the Starr report in September, and the house upgraded its computer systems, network delays have since been the norm.

Since the Clinton case shifted in the Senate, "We've been inundated with E-mails — so much so that we've had some server problems and have been getting [E-mail] late," said a

spokeswoman for Sen. Don Nickles (R-Okla.).

Nickles' office received about 13,000 E-mails between Jan. 17 and Jan. 26; the office put its entire staff on the task

of responding to the messages, the spokeswoman said.

Rep. Barney Frank (D-Mass.), a member of the House Judiciary Committee, has received as many as 1,600 E-mails over a weekend since the release of the Starr report and at key points in the impeachment hearings. But Frank's office still considers postal mail and faxes to be more effective than E-mail for constituent relations, said Peter Kovar, a spokesman for Frank.

The office of Sen. Frank Murkowski (R-Alaska) also has received thousands of E-mails from citizens around the country, about 950 of them from Alaskans.

But the process for handling E-mail hasn't changed. Responses to E-mail usually are sent back through postal mail because of the perceived insecurity of the Internet, a Murkowski spokesman said. ■



AS THE SENATE debates impeachment, Americans have sought greater communication with their government through E-mail messages

## Air-Traffic Union Puts Upgrades on Hold

*Says FAA modernization hasty, incomplete*

BY STEPHAN DECK

This month the Federal Aviation Administration (FAA) began cutting the ribbons on several new components for U.S. air-traffic control systems in an effort to finally modernize the aged and creaky technology. But a key labor union claims that the upgrade effort is too hasty.

Last week, for example, the FAA dedicated a new display system in its Auburn, Wash., center that controls traffic in the Seattle area. Lockheed Martin Corp. replaced 19-inch monochrome radar-tracking displays with 20-inch color monitors and also replaced old proprietary software and hardware.

But Tom Brantley, vice president of Professional Airways Systems Specialists (PASS) in Washington — the union that installs and repairs air-traffic control systems — said the FAA has rushed too much just to have something new in

place. "We recognize the need for new systems," Brantley said, "but we seem to be getting systems that are less functional than the old ones."

He said the new systems are missing components, including mapping overlays. FAA spokesman Frasier Jones said

PASS's concerns could be related more to ongoing labor contract negotiations than equipment. "We have signed a contract with the air-traffic controllers but are still working on a deal with PASS," Frasier said.

Randy Schwitz, executive vice president of the National Air Traffic Controllers Association in Washington, under-

scored that point. "No, we don't think this program has been rolled out too fast. We were working with 30-year-old equipment, and the new systems are a huge improvement over the old ones. I love it and can't wait to use it."

Until the PASS contract is signed, the FAA will hold off on switching its 21 en-route traffic control centers in new host mainframe computers. At least six are ready to go, the FAA said. ■

## Senate Bill: Give Companies Incentives for IT Training

BY RANDY GOLF-SCHWITZ

A bill to be introduced in the Senate next month could give companies a financial incentive to train workers for information technology jobs.

The bill would give companies tax credits of as much as 25% of the cost of IT training, up to \$6,000 per employee each year.

Its goal is to spur companies to retain workers for IT ca-

reers, said a spokeswoman for Sen. Kent Conrad (D-N.D.).

Companies now can write off training costs as expenses. With the more attractive tax credit, training costs are subtracted from a company's tax bill. "It's much more meaningful to get a tax credit" than just an expense deduction, said

Howard Block, a certified public accountant and analyst at BancAmerica Robertson

Stevens in San Francisco.

Lynn McKissack, information systems training coordinator at Harvey's Casino Resort, which operates several resorts in the Lake Tahoe, Calif., area, said such a bill might make companies more willing to train candidates lacking certain technical skills, or make it easier to "sell" the idea of IT training management, she said.

According to a recent Stamford, Conn.-based Meta Group Inc. survey of 446 companies, the average number of training days for IT professionals dropped from 8.2 in 1997 to 7.4 last year. ■

## India Says U.S. Code a Security Risk

*Puts banks on alert for weak encryption*

BY SHARON DAUDIN

The government of India issued a "red alert" to its banks and financial institutions this month, warning them not to use U.S.-made security software because the encryption is too weak.

The warning has industry-watchers debating whether it's a sign the industry is being crippled by U.S. government regulations or if it's merely a political ploy.

The Indian Defense Research and Development Organization issued the alert on Jan. 11, citing as a reason the limits the U.S. government puts on encryption exports. U.S. vendors are limited to exporting 56-bit encryption, which is much weaker than the standard 128-bit encryption generally used within U.S. borders.

"It's a confirmation of what we've been saying for some time," said Colleen Poulin, chairman of the Business Software Alliance in Washington. "American industry is losing out on business. This is one less opportunity in an area where there is a lot of investment going on."

But some say the move is a slap at the U.S. government, which has had strained relations with India recently.

"This isn't a wholesale condemnation of American software," said Larry Dietz, director of information security and legal strategies at Current Analysis Inc. in Sterling, Va. He suggested India is protecting its domestic software industry from U.S. imports. "We do it all the time, and we just call it politics. ... Every country sponsors the home team," he said.

For example, last fall the Clinton administration slightly loosened export regulations on encrypted products, allowing American companies with offices overseas to use strong encryption without an export license. ■



## Compaq/DEC Unveils Mixed-Platform Storage

BY NANCY DILLON

The first significant storage offering resulting from last year's marriage of Compaq Computer Corp. and Digital Equipment Corp. debuted last week.

The new systems are Fibre Channel disk arrays that can connect with multiple server platforms on a Fibre Channel arbitrated loop, and the systems should support Fibre Channel switches by spring, company officials said.

First in the lineup is the new Storage-Works RA8000, a stand-alone RAID array with a maximum capacity of 1.3T bytes; the 400G-byte version costs \$68,000. The Storage-Works ESA12000 is the rack-mountable version that can scale to hundreds of terabytes via additional controller pairs; the 1.3T-byte version costs \$169,000. Similar to competing products but unlike previous Compaq or Digital offerings, the new arrays support simultaneous Fibre Channel arbitrated loop connections to Windows NT and the Sun Microsystems Inc., Hewlett-Packard Co. and Silicon Graphics Inc. Unix versions.

New controller software that isolates each server and pre-seeks only allocated storage helps make this possible. Compaq has a Fibre Channel arbitrated loop configuration that includes a Fibre Channel hub from Gadzoos Networks Inc. in San Jose, Calif.

Due by spring is a firmware upgrade that will let the systems connect to a Fibre Channel switch. The switch offers switched direct connections of 100M bit/sec. each, vs. 400M bit/sec. total, with a Fibre Channel hub. Supported platforms will include Windows NT, Digital Unix and OpenVMS, company officials said.

One Storage-Works user said the new arrays could speed his adoption of Fibre Channel. "With hubs, it sounds like we'd get the ability to have multiple systems that can share one array [on a loop]," said Bruce Clauter, a systems manager at

Resource Partner, a unit of the Columbus, Ohio-based food and chemical giant Borden Inc. And the improved distance

capability of Fibre Channel over SCSI (10 km vs. 25 meters) also is important to Clauter. "It opens some possibilities in the

way we set up our data center. We're space-constrained, and with Fibre hubs and longer distances, I can put disk [arrays] remote from my systems," he said. Clauter's environment includes Windows NT and at

least three variants of Unix.

Vendors offering mixed-platform Fibre Channel products similar to Compaq's new arrays include EMC Corp. in Hopkinton, Mass., and MTI Technology Corp. in Anaheim, Calif. ■

## Just Another Casual Friday.

Many insurance providers are waiting until next year to beg their way back into the IT business they abandoned in 1998.

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# SEQUENT SKETCHES UNIX/NT ROAD MAP

Hardware maker pushes low-end servers that run both Unix and Windows NT

BY JERIMIAN VJAYAN  
SAN DIEGO

**A**FTER YEARS of building big Unix servers on Intel Corp. hardware, Sequent Computer Systems Inc. now wants to do the same with Windows NT and the forthcoming Windows 2000.

At a Sequent user meeting here last week, the company outlined a long-term, dual-operating-system strategy that it hopes will align it better with Windows NT's growing influence in corporate America.

During the next few years, the company will offer a range of highly scalable Intel-based servers that will be capable of running either Unix or Windows 2000—or both. Based on scalable Non-Uniform Memory Access (NUMA) architectures, the servers will feature bundled technologies from partners such as Microsoft Corp., Oracle Corp., EMC Corp., IBM and The Santa Cruz Operation Inc. (SCO).

The strategy makes sense, said William J. Newman, manager of information technology at Carlson Hospitality Worldwide in Omaha, because "NT is very rapidly heading in the

direction of the data center."

"It is becoming an increasingly shared environment [with Unix and NT in the data center]... so being able to co-exist is the right way [for Sequent] to go," agreed Patrick Hoffer, a systems manager at US West Long Distance in Denver.

Last week's technology road

map formalizes a strategy that Sequent has been talking about since the launch of a hybrid Unix/NT server in the fourth quarter of last year.

The moves are a bow to NT's growing dominance and a response to Sequent's own struggles.

Sequent has carved a high-end niche for itself by building

## Sequent CEO at a Crossroads

**S**QUELLED at the high end by large Unix vendors and at the low end by Windows servers, Sequent Computer Systems Inc. is at a crossroads. CEO

Cassy Powell talked last week with senior editor Jerimian Vjayan about Sequent's new thrust into low-end servers that run both Unix and Windows NT.

**What message should users take away from this?**  
A: That we are driving into the data center with Intel, Unix and NT. That we are going to press into the main-

frame space. It is our belief that NT in the data center is an inevitability. The question really is when. No [user] should be in the position of having to choose between

Unix or NT.

**What does the merger of Sequent's Dynix with SCO's UnixWare mean for users?**  
A: It just says we are on a transition path to Monterey [the code-name for a merged

Unix for the 64-bit Merced chip]. We are just adding elements of UnixWare [to Dynix].

The two are so close to binary compatibility already that it is not funny.

We are also going to be adding elements of AIX and IBM middleware and DB2.

**Why should users care about Merced?**

A: It took 32-bit microprocessor technology to take

minicomputers out. IA-64 [Merced] has what you need to replace mainframe capability.



CASEY POWELL

large servers with relatively inexpensive Intel hardware. It was among the first to announce symmetrical multiprocessing servers back in 1984 and also was among the first to announce NUMA servers.

## Lack of Support Hurts

But the lack of widespread support for Sequent's Dynix PTK operating system—compared with other Unix versions such as Sun Microsystems Inc.'s Solaris and Hewlett-Packard Co.'s HP-UX—has hurt its ability to compete with those vendors.

And Sequent's focus on the \$500,000-to-\$1 million server market has hurt at the low end.

The company has been taking steps to address those issues. Last week, for instance, Sequent launched a relatively low-end Unix/NT server called NUMA-Q 1000. It supports up to eight processors and has a starting price of about \$95,000.

Sequent also announced it will blend parts of SCO's UnixWare—the best-selling Unix for Intel hardware—with its own Dynix PTK in the fourth quarter of this year.

The merged operating system, UnixWare PTK, will give Sequent's software vendors a chance to write for a much broader market, said Greg Weiss, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. ■

## Compaq Turns AltaVista Loose as Portal

But Net spin-off may be too late

BY SHARON WACHS

Compaq Computer Corp. last week spun off its AltaVista Web site into a separate subsidiary, AltaVista Co., and said it would take the new entity public some time in the future.

The move will take advantage of the stratospheric value that Wall Street has placed on Internet stocks. In addition, Compaq and AltaVista executives said they expect major investments to turn AltaVista from a popular search engine into a major portal.

"The mission is to be the leading Internet destination site for

information and E-commerce," said Greg Menn, vice president and general manager of business and technology strategy at the new Palo Alto, Calif.-based unit.

But many analysts said that, although AltaVista may have the Internet's best search technology, that isn't enough to turn it into a top-tier portal.

"They do not have the content, the staff [or] the media partners that will be needed to win in the portal wars," said Chris Charron, an analyst at Forrester Research Inc. in Cambridge, Mass.

He said AltaVista will need a powerful media partner in order to compete effectively with established players such as Yahoo Inc. and America Online Inc. "It's too much ground to

make up alone," Charron said.

"I wish they had done this within a week of closing the deal with DEC," said Bill Whyman, an analyst at Legg Mason

Precursor Group in Washington. Compaq acquired AltaVista when it bought Digital Equipment Corp. last year.

"They should have done this six months—a year ago—when the portal race was still winnable," Charron said.

AltaVista said it will exploit

its relationships with Compaq, such as making AltaVista the default Web portal for Compaq Presario PC users.

Separately, Microsoft Corp.'s Microsoft Network agreed to use AltaVista search technology, while AltaVista will use Microsoft's Hotmail E-mail service. ■

## SNAPSHOT

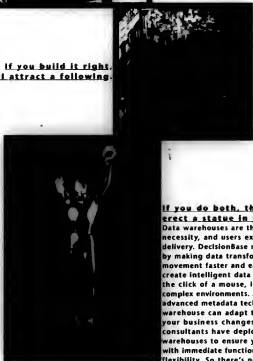
### Quarterly Earnings Reports

COMPANY	Q4 REVENUE	Q4 EBITDA	Q4 NET INCOME
* Refers to calendar fourth quarter	1997	1998	1997
America Online Inc.	\$592.2M	\$96.0M	\$33.8M
AT&T Corp.	\$12.9B	\$13.5B	\$1.3B
Compaq Computer Corp.	\$7.3B	\$10.9B	\$607.7M
EMC Corp.	\$873.4M	\$1.2B	\$166.2M
Informix Corp.	\$181.3M	\$24.6B	\$7.3M
SAP AG	\$1.2B	\$1.5B	\$491.2M
The Santa Cruz Operation Inc.	\$47.5M	\$32.7M	\$424,000



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MARYFRAN JOHNSON

# Big Brother brouhaha

**W**HEN INTEL CORP.'S Andy Grove made his famous observation that "only the paranoid survive," I wonder if he had the privacy fanatics in mind. Last week, a trio of privacy groups made news with a proposed boycott of the Pentium III chip, claiming it posed a dire threat to consumer online privacy. The chip, scheduled to ship in early March, is equipped with a controversial security feature that allows individual PCs to be tracked through a uniquely

identifiable processor serial number. One privacy group quickly produced a "Big Brother Inside" logo on its Web site to mock the "Intel Inside" advertising campaign. And a few headline-hungry politicians leapt into the fray with clueless threats about banning chip sales.

But Intel moved swiftly to turn a public relations nightmare into a story about customer choice. The \$26 billion chip maker reversed its position and pledged that the Pentium III would ship with the security feature turned off.

That leaves it up to customers to turn it on if they want an additional layer of identification hard-wired into their machines.

In the midst of all this, it was all-too-easy to overlook the potential business benefits of a processor serial number which can't be removed or spoofed.



MARYFRAN JOHNSON is executive editor of Computerworld. Contact her at maryfran.johnson@computerworld.com

Many IT shops are struggling today with the complexities of ensuring secure electronic commerce, managing PC assets, authenticating remote users and tracking software licenses. The Pentium III could add a very welcome weapon to the IT security arsenal.

Online privacy concerns are indeed a hot-button issue with the public, but so are safe, secure transactions. The privacy zealots and the misinformed politicians

do us all a disservice with their conspiracy theories.

I think we should focus instead on encouraging and using the technologies that will make it easier to customize our own privacy and security options.

Maybe while the paranoid are surviving, the rest of us will be happy pursuing life, liberty — and online bargain prices. ■

ALLAN E. ALTER

# We need to teach teachers the truths about IT

**A**s business technologists, we've learned to be realistic about computers. As parents and school volunteers, we should be teaching educators to be realistic, too. We know the PC is just a tool, and a darned-hard-to-manage one at that. We know you can't just toss technology at problems; computers won't be effective unless behaviors change. Yet the education establishment, unaware of what we've learned, treats the PC as a savior. The Clinton administration is spending close to \$2.5 billion to connect schools to the Internet and help them buy computers and software.

Schools are forgoing books, repairs and arts programs to buy computers. Meanwhile, educators and investigators are finding no firm link between academic achievement and classroom computers.

"Computers in classrooms are the filmstrips of the 1990s," wrote Clifford Stoll, who studies the social implications of technology, in his 1995 book *Silicon Snake Oil: Secrecy and Thoughts on the Information Highway*.

How can business technologists help educators learn computer realism? Talking about the limits of computers is a start. But the full answer lies in our business half. We should encourage schools to teach the skills that make people effective at deploying and using computers.

These aren't technical skills, but life skills our best professionals have honed to excel at our trade. It begins with analytical skills, reading and mathematics, but it goes well beyond that.

Let's start with listening. It's hard to think of a more important skill, yet nobody except management trainers teaches it.

Successful IT professionals know listening is more than hearing. Understanding people who are different from you is hard work, as any top-notch manager, help desk worker or application developer can tell you.

But kids think listening means shutting up while a grown-up drones on. That's a shame. We should have schools teach pupils the same listening techniques we learn in our leadership development programs.

Which brings us to another life skill: leadership. We've learned leadership is a teachable skill, not



ALLAN E. ALTER is Computerworld's department editor. Managing Contact him at alter\_a@computerworld.com





something you're either born with or without — like a birthmark.

Leadership skills are important at all levels, not just the top. Motivating people, coaching, learning how to say "no" and developing and projecting values are the stuff of true leadership — and all are skills we can gain through character development. In the world of effective IT deployment, these skills are all important. Aren't they also important for students to learn?

If we want educators to keep computers in perspective, a good way to help them is by keeping computers in perspective ourselves. Don't just volunteer to wire your local schools, as helpful as that is. Ask educators to add the "soft skills" to their K-12 and college curriculums and volunteer to help teach them. You've learned to be more realistic about computing. Who better to teach that to others?

DAVID MOSCHELLA

## For wireless, U.S. culture drives down its own path

**W**E SHOULDN'T be surprised that the British firm Vodafone Group has managed to become the world's largest wireless telephone provider by outbidding Bell Atlantic for AirTouch Communications. After all, America always seems a step behind when it comes to the wireless business.

But what fascinates me is how this clear gap in global technology usage has become inseparable from a larger set of cultural preferences, which

most of us would be loath to overturn.

We all know the technological shortcomings. The U.S. lacks a coherent national wireless telephone network; inter-regional roaming charges are often outrageous; analog quality is often poor and unreliable, while the transition to digital systems has been slow.

Aesthetically, many Americans still use chunky-looking phones

that we prefer to leave in our cars or briefcases. This means that we mostly use cell phones to make calls, not receive them, and that the phone's power is typically turned off.

All of this is pretty much the opposite of what you see in Europe, Japan and many other places.

However, some of these differences stem directly from matters of taste. For whatever reason, Americans exhibit a strong and growing

preference for asynchronous modes of communication like E-mail and voice mail, while much of the rest of the world has stayed primarily synchronous.

While E-mail and voice mail are becoming the dominant mode of electronic interaction in the U.S., elsewhere real time is still king.

These differences tell us much about ourselves. Asynchronous technologies tend to be efficient in that messages are generally short and to the point. More important, both E-mail and voice mail increase our sense of control in that we can send, receive and respond to messages entirely at our convenience.

Finally, since a physical record remains, asynchronous messages are inherently more formal, less personal and more guarded. You never know who might see an E-mail or listen to a voice mail.

Synchronous communications are, of course, generally the opposite. It still amazes me how many Europeans include their mobile number on their business cards and accept calls constantly throughout the day, even at the dinner table.

A similar trend is under way in Japan, where wireless PBXs are becoming popular. These systems essentially replace the standard company desktop telephone with a pocket phone that employees carry with them for use anywhere

throughout the office complex.

I used to think that most of these differences were due primarily to economic pressures. In the downsizing during the 1980s, many of us lost our secretaries and were too busy to even think about answering someone else's phone. Voice mail soon became indispensable, and then E-mail proved even more productive.

However, now that similar financial pressures have taken hold virtually everywhere, similar shifts have not occurred outside the U.S. In many countries, E-mail usage is only slowly expanding, while voice mail still is relatively rare. This suggests that distinct cultural preferences may well be at work.

It will be interesting to see how all this plays out with PDAs and other emerging mobile devices. For now, I think the message is clear. Wireless has a great future and should eventually become the principle voice-technology system for both business and consumers.

But this won't happen in the U.S. until these systems also deliver the time-shifting capabilities we so clearly prefer. We want our communications technologies to serve us, not control us. Wireless or not, asynchronous is the only way to go. How else can we avoid all those conversations we don't really want to have?

## READERS' LETTERS

### Thanks for helping him get ahead

**I** JUST WANT to say thanks for all of the great information packed into Computerworld. I am a college student, and reading your magazine gives me information that I need to form solid goals for my career.

Having recently interviewed with one of the companies listed as a "top place to work in information systems," I feel very informed and up-to-date on the issues this company is facing.

Your magazine gives me a much better idea of what I am getting into than many other soon-to-be college graduates.

Thanks for all of the helpful and informative articles.

Clay Keller  
NIS major  
at the University of Tennessee  
at Martin  
Martin, Tenn.  
ckaykell@marv.utn.edu

### Gates gets rich while the rest of us reboot

**A**FTER USING Windows NT 4.0, and Windows 95 throughout 1998 (having regressed from Macintosh), I can testify that both of these are utterly flaky products and the "rock-solid" systems that journalists tout them to be. Rebooting my machine several times a day is now an accepted part of my routine.

I am outraged that the world should allow a man (and his underlings) to become so rich peddling such products. Doesn't Bill Gates have any shame and decency? **Muriel Nagendaram**  
Boise State University  
Boise, Idaho  
nmurill@boisestate.edu

### 'Risqué' ad refreshing

**M**OST advertising today is so boring that when a truly creative campaign

is designed, either the company's executives or magazine editors fear running it. I was pleasantly surprised to see Xircos's new campaign, the "Lost the dangle" spread, on pages 68-69 of your Jan. 11 issue. It was well-conceived, humorous and brief. The message was immediately clear. Kudos to that creative team, but double kudos to the Xircos execs and Computerworld for having the courage to run this admittedly risqué ad. **Timothy S. Martin**  
Advanced BusinessLink  
Kirkland, Wash.  
tim@businesslink.com

became a personal nightmare. If Orenstein's view of history is true, we should all be walking around with bags of money instead of ATM cards. A cursory inspection of a PC reveals that there is practically nothing left on it besides an overboarded operating system, a word processor, and a browser that connects up to all of the things we really need. Lightweight, browser-based computing is the real future of technology.

**Richard Finkelstein**  
Performance Computing Inc.  
Chicago  
rfinkelstein@performance.com  
More letters, page 36

### PC: Light makes right

**D**AVID Orenstein's opinion piece struck a special chord with me ("Why Americans won't ever give up their precious PCs," CW, Dec. 11). I hope that the PC never becomes part of my psyche — though it long ago

COMPUTERWORLD welcomes comments from its readers.

Letters shouldn't exceed 250 words and should be addressed to MaryAnn Johnson, Executive Editor, Computerworld, PO Box 917, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-9631. Internet: letus@cw.com. Please include an address and phone number to expedite verification.



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CARL SHUSTERMAN

## Think high tech won the visa war? Not by a long shot

**E**VEN THOUGH Congress upped the cap on H-1B visas from 65,000 annually to 115,000 for fiscal 1999 (which began Oct. 1, 1998), the high-tech industry's battle for greater access to foreign computer talent isn't over.

The problem is that although the American Competitiveness and Work Force Improvement Act of 1998 increased the quota of temporary H-1B visas, it did nothing about the per-country cap on "permanent visas" (green cards). The result: U.S. firms are training foreign professionals who, after six years on temporary visas, have

no mechanism for remaining stateside.

The problem isn't new, and it's sad that it continues in the wake of last fall's H-1B "victory." In 1990 — the same year Congress imposed the 65,000-person cap on H-1B visas — it also raised the annual cap on employment-based green cards to 140,000. But comparing the caps is misleading: Spouses and children aren't counted in the H-1B

cap but are counted in the green-card cap. Moreover, most countries are subject to an annual employment-based cap of only several thousand green cards each.

Country quotas are a vestige of the infamous "national origin quotas" that were largely eliminated from immigration law in 1952. The 1952 law simply provided that all countries would be given identical quotas. Therefore, China and India — nations with a combined population of more than 2 billion people — have the same quotas as tiny countries such as Nepal, Bhutan and Monaco.

In the early 1990s, employment-based quotas for green cards were mostly "current," with no backlogs. But with the advent of the Web and with IT driving the economic boom, the picture began to change. In 1996, the employment-based categories for people born in India, a country that accounts for 44% of all H-1B visa holders, started to get backlogged. In 1997, China joined India as the second country to experience significant backlogs in getting employment-based green cards for high-tech workers.

We have reached the critical point at which people from backlogged countries can't obtain green cards before their H-1B status expires. The skills of those experienced, highly trained experts are being lost when they're needed most.

The original Senate bill to raise the H-1B cap would have all but eliminated country quotas for employment-based immigrants. The bill would have allowed a shift of unused green cards from low-demand to high-demand nations. Unfortunately, this commonsense approach wasn't included in the final compromise bill passed by Congress and signed by the president.

So what now? There are several ways for H-1B visa holders and their employers to deal with increasing green-card backlogs. A limited number of green-card applicants can get "national interest waivers" or "reductions in recruitment" and thereby reduce green-card processing times. Employers also may hire Canadians, who enjoy expedited immigration benefits through the North American Free Trade Agreement.

But those are just stopgap solutions. The real answer is to persuade Congress either to shift green cards from low-demand countries to high-demand countries or to allow further extension of H-1B status for workers who can't obtain green cards within six years.

Let the lobbying begin. ■

JOHN GANTZ

## The new world of enterprise reporting is here

**W**Henever Bill Gates talks about Microsoft's own intranet, which spans 2,000 servers and connects 26,000 employees, he talks about wanting bad news to travel fast. Company executives need to know what's going on so they can make changes on the fly. Good news shouldn't require much behavioral change; bad news might.

In simpler days, company executives might find out what's going on by checking ledgers, walking through a warehouse or talking to the guys in engineering. Today, the information we need is buried somewhere in the great goxplexes of data spawned by our modern computer systems. It's in millions of cells in the thousands of rows and tables in hundreds of relational databases.

The big-hammer approach to digging out the relevant data is to build a data warehouse that taps into operational and transaction systems and then overlay analytical applications on top of that. Data marts in turn can sit on top of the data

warehouse and pull up topical or application-specific information for in some cases get it directly from the underlying operational system). Either way, it's a chore.

The small-hammer approach is to use specific, targeted enterprise-reporting software packages that bypass the whole enterprise data warehouse megillah. Those packages are turbocharged descendants of end-user query and reporting tools, except that they build a repository of reports for storage and retrieval; offer administrative functions, such as profiling, security and stored database management system commands and generate "queriable" reports that let users drill down into the data in real time. They generate "live" electronic reports tailor-made for intranet access, and they're generally drenched in Java and compliant with online analytical processing (OLAP). The products usually come with separate development environments, servers for turning report repositories into Web sites, security tools, end-user viewers and query tools, and tools for managing report objects.

Examples of the genre are Seagate Software's Info 7, Actuate Software's Actuate Reporting System, Data Watch's Monarch/ES and Scribe Technologies' suite of ReportMart products.

The market for that new class of enterprise reporting software is still small — a little more than \$100 million in worldwide sales last year, according to International Data Corp. — but in five years, it will be worth well over \$1 billion. The software should be especially attractive to small and midsize companies that don't have the budget, time or resources to scale the enterprise data warehouse mountain.

What I like about these packages is their turnkey nature. They don't try to solve all information access and reporting problems at once, and they don't require an army of programmers to implement. In addition, they tailor information using a metaphor users understand — reports — and they were designed from the start with the Web in mind. And you don't need to be a rocket scientist to use them.

I have seen, for instance, a company, whose main business was reporting on Web statistics, use Seagate's Crystal Reports to analyze the volumes of data produced each day. The queries were written by a college kid.

Others may come along and knock those vendors aside. Microsoft's "Plato" (the OLAP servers in SQL Server 7.0) announcement last fall was seen by some as competitive with enterprise-reporting tools, and the collaborative software vendors are bound to crowd that space. New features to those product categories will let other software developers and corporate developers offer their own enterprise-reporting products.

But in the meantime, you might consider looking at one of these packages. You could, for instance, keep track of the progress of your data warehouse development project, including cost overruns, programmer hours and statistics on the political battles you win or lose. Or track the rapid decay of the electric grid on Jan. 1, 2000. Getcher bad news fast, same as Bill. ■



CARL SHUSTERMAN is a consultant at the Shusterman immigration law firm in Los Angeles. Contact him at cshusterman@comcast.com.



JOHN GANTZ is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at jgantz@idc.com.

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## READERS' LETTERS

## Redesign reaction: Bouquets and brickbats

**I** THINK THE NEW format is so much more organized, making it easier and more enjoyable to read. The news items are more succinct. I read your newspaper at work, and I don't usually have the leisure of reading a two- to three-page article or news item. We browse through it and read the shorter ones, then we pass it around.

In the Technology section, it might be a good idea to include a feature box that shows what's new in the market today — software, hardware, network, etc., with a comparison of features and price estimates.

I think Computerworld's

readership will increase with the new format.

**Aurora Schlosser**  
Financial analyst  
GenAmerica  
St. Louis

**T**HE NEW format was very difficult to follow. The font changes were distracting, to say the least.

You put out a great publication — one of the two that I make time for every month — and I'm a dedicated follower, but the new format detracts from the great content.

**Paul Daly**  
IS director  
Centinella Hospital  
Inglewood, Calif.

**I** WANTED TO indicate how happy my co-workers and I were with the new magazine layout. It was much easier to read.

I especially liked the shorter sections for quick information. I had made the decision to cancel my subscription this year, but I have now changed my mind.

I am sure that everyone who steals my copies will also be happy with my final decision.

This was a great change for 1999!

**Eric E. Wagner**  
Database administrator  
Prudential Bank  
Atlanta

**I** TYPICALLY PREFER new and more modern appearances, but my overwhelming impression of your new Computerworld format is very negative.

The overall appearance seems cluttered on page after page — too many extra-large headlines with too many fonts — particularly the bolder fonts. It's now more of an effort to read your magazine.

**Stephen Anderson**  
Technical manager  
Department of Social  
and Health Services  
Olympia, Wash.

**T**HE NEW layout is outstanding! It's very easy to find the sections I'm interested in — excellent new typefaces.

**George A. Boley**  
Associate dean for research  
University of Southern California  
Los Angeles



**A**N EXCELLENT, excellent makeover. The content is more relevant and concise, with few "Company X just released model Y of its Z" product fillers.

The typography and graphic design are clean and professional. There are almost no continued stories, other than those on Page 1.

The overall organization is



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very easy to follow, and the summaries of stories at the start of each section are helpful.

All in all, the new design was a joy to read from cover to cover.

I've been reading Computerworld for more than 20 years, and this is the best it's ever been. My hearty congratulations.

**Bruce F. Webster**  
Object Systems Group  
Washington

**P**RAISE TO YOUR EDITORS for the overall new magazine content and style orientation.

However, I must take issue with the Jan. II issue's Technology Flashback section, wherein you state, "June: U.S. declares war on North Korea."

Sadly, for the thousands of soldiers lost and (subsequent) 46 years of semibot cease-fire,

there was no declaration of war. The Korean-United Nations non-war inaugurated the beginning of the U.S. government's "conflict" approach to throwing away national treasures and human life without batting an eyelash.

Please take note when your Technology Flashback coverage comes upon the "Vietnam Conflict."

**H. James Bronson**  
"Vietnam Conflict" veteran  
Frankenmuth, Mich.

### Chip implant into human was a publicity stunt . . .

**I**'M NOT SURE I understand why the microprocessor chip was implanted into Kevin Warwick ("Professor Warwick Chips In," CW, Jan. II).

Wouldn't it have worked just as well if he had carried it in his hand or taped it to his forehead? It doesn't appear

that it interfaced with his body in any way.

What, exactly, was the big deal? Had he entered his office, could he have stopped the computer from coming on? Was he actually controlling anything?

I don't mean to sound negative — as a person who is hearing-impaired, I eagerly look forward to a day when an implant might improve my hearing. But this honestly seems to me like a publicity stunt. It isn't a breakthrough at all.

**Phil Kriley**  
Systems manager  
Abernethy Ludlum Corp.  
Windsor, Pa.  
PKriley@AbernethyLudlum.com

### . . . that was 'overstated' way beyond belief

**T**HIS WAS, without a doubt, one of the most techno-sensational,

future-speculative and ridiculously overstated pieces of emerging technology that I have ever read.

The article states, "The British Broadcasting Corp. was on hand to document the historic event."

Historic? Such miniaturized technology certainly has future applications, but how historic was this particular experiment?

The fact that this device was implanted below the skin is completely irrelevant. The subject could have carried it in his pocket and had it ID him and open doors, etc.

My staff carries encoded cards on necklaces around their necks that do that very thing. We must be part of history too, huh?

The article also notes, "Boulos likens him to a latter-day Edward Jenner, who injected himself with cowpox in 1776 to further his research into a

smallpox vaccine."

To compare a below-the-skin implant of a capsule-sized, benign device with a researcher who would risk his life to develop a vaccine for humanity is ludicrous.

**Richard C. Herring**  
Miami  
spondreak@windspring.com

### Finding success in failure

**I**'CAN'T QUITE accept Clark Refining CIO Jeff Chas-ney's statement ("Post-Y2K: Project Management Key," CW, Jan. II) that "if you cancel projects for the right reason, it's a success." I would modify that statement slightly: "If you cancel projects for the right reason, it could be a successful failure."

**Tom Omittier**  
Vice president and CIO  
Universal Leaf Tobacco  
Richmond, Va.  
gmitter@universal.com

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# BUSINESS

## KEEPING IT IN-HOUSE

ERP installations typically include big consulting hills. Home Depot and Reebok are doing without the consultants, hoping to save money and tailor the systems more closely to their needs than outsiders can manage. **40**

## SITE PROMOTION

Web retailers say they need a mix of traditional and new ways to attract customers. TV ads, direct mail and other brand building are becoming more common as sites grow more sophisticated about self-promotion. **41**

## DONE? MAYBE

When companies say they're "done" with year 2000 fixes, they may not all mean the same thing. Some do overhauls; others settle for workarounds. Most wait detailed readiness reports from suppliers but fear the same request from customers. **42**

## NEW YEAR'S PLAN

Where will you be on Jan. 1, 2000? We asked our sources, most of whom plan parties or quiet time at home — unless the power goes out and airplanes fall from the sky. **44**

## FEMALE FOCUS

Men dominate tech management jobs in the U.S., but women hold most of the jobs managing the information. Paul A. Strassmann writes. He advises IT managers to

focus more on how women want to use the technology, not the tech itself. **47**

## IT FACE-OFF

Staples and Office Depot are nose-to-nose rivals, but how do they compare in their use of technology? Office Depot has the edge, a huge advantage in a market with paper-thin margins. But Staples may even things out online. **50**

## RETENTION TIPS

What are the best ways to keep the good IT people you've hired? Our Top 10 list says keep them interested and up to date, accommodate their lives away from work and make the job site comfortable. **53**

## MBA WORKOUT

At PricewaterhouseCoopers, a group of IT consultants set out a year ago to get their MBAs while still working. It works out fine — if you don't need time for anything but work or school. But they say it's worth the effort. **58**

## NEGOTIATING RFP

Problems you run into near the end of a project often come from weaknesses in the request for proposals, Joe Auer writes. Defining requirements ahead of time is critical, so you can write them in the contract and get a guarantee. **56**

### MORE

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## SOWING SEEDS OF SUCCESS

TONY WILLIAMS got along in his last job, but he really got ahead after learning Web skills in an IT training program set up by a priest to get gang members off the street. Such IT-specific programs are rare, but basic training programs have become reliable sources of motivated, entry-level workers for Sprint and CVS. And they give hope to people with ambition but little opportunity.

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# ERP WITH FEWER CONSULTANTS

Reebok, Home Depot plan bulk of work in-house to best meet business needs

BY CRAIG STEDMAN

**B**IG CONSULTING bills are a fact of life for most companies that install ERP applications. But some plucky users say going their own way is a better approach.

For example, home-improvements retailer The Home Depot Inc. and footwear maker Reebok International Inc. both have embarked on mostly do-it-yourself rollouts of SAP AG's enterprise resource planning (ERP) software.

Executives at Home Depot and Reebok said doing most of the work internally is expected to save money and help them better match the technology to their business needs. But they warned that disciplined management and a well-defined

project plan are essential.

"You have to be pretty brutal with yourself about what you're capable of [handling]," said Peter Burrows, chief technology officer at Scoughon, Mass.-based Reebok. "If you

haven't prepared for this, it's a very difficult thing to do."

Reebok did work with a consulting firm five years ago to define a technology-management process in preparation for a major makeover of its systems. But the rollout of SAP's R/3 applications is being done mainly by 30-plus Reebok employees who took the German vendor's training classes.

Reebok's staffers are being supplemented by only a handful of consultants with experience in technical areas such as data conversion and loading, Burrows said.

Atlanta-based Home Depot also is putting about 30 business and information technology workers through SAP's training to prepare for its R/3 project, which is just starting (CW, Jan. 25). Home Depot plans to use SAP's consultants only as "coaches," said Ron Griffin, CIO at the \$30 billion retailer.

"The important thing is to focus on chunks that are manageable," Griffin said. That may appear to lengthen the

rollout time, but Home Depot would rather do the work itself than "turn the keys over to consultants" who don't know its business, he added.

ERP users who follow a do-it-yourself path are still "certainly the exception," said Jim Holmbeck, an analyst at Giga Information Group Inc. in Cambridge, Mass. Many companies staff up to 40% of their project teams with consultants to speed up the work, he said.

For example, VF Corp., a

Greensboro, N.C., clothing maker that is also installing SAP's software, is relying heavily on consultants to work with teams of its business users on configuring the applications.

"To be honest, I don't know how we would have done this without them," said Leroy Allen, vice president of engineering at VF. "We were looking at a fast-track rollout, and we really felt the only way to do that was to use consultants." ■

## Hiring Automation May Leave Some Managers Cold

Offers a smoother process, but gives them more to do

BY BARR COLE-ODOMSKI

Corporate clients, not technical problems, are the biggest hurdle for companies trying to use a new class of software to automate the hiring process, according to early adopters.

Enterprise workforce planning (EWP) systems let hiring managers and human resources staffers collaborate on budgets, hiring requisitions and interviews in order to fill jobs faster.

It gives them access to a database of résumés and lets them create job requisitions online and route human resources information to the appropriate managers in the company.

Users said the systems save time and money in hiring, but they also make managers a bigger part of the recruiting process.

"There are some [managers] who may not be receptive to playing a bigger role in staffing," said Bill Weitz, director of staffing at KLA-Tencor Corp., a chip components company in San Jose, Calif.

Using Sunnyvale, Calif.-based Icarion Inc.'s Icarion WorkSpace, an EWP system released last month, KLA-Tencor will create a database of résumés that managers can search from their own desktops.

"I don't expect all managers to use it, but I think enough will to impact our cost to hire," Weitz said.

Indeed, some managers will look at such an application and think of it as "work that HR used to do for me," said Jenni Lehman, an analyst at Gartner Group Inc. in Stamford, Conn.

Managers may need to be reminded that unfilled jobs interfere with production schedules and that they may lose good candidates if the hiring process is slow, Lehman said.

Other EWP players include Hermosa Beach, Calif.-based PeopleMover Inc., Evolve Software Inc. in San Francisco and Deploy Solutions Inc. in Westwood, Mass. ■

## FBI Vet Says Tech Has Taken to the Streets

Even drug lords see PCs help the business

After 26 years of chasing mob bosses, drug lords and street gangs for the FBI, **Richard J. (Jack) Hunt**, director of the Federal Law Enforcement Division at GTE Internetworking, is working on The Bastille, an international Web-based data sharing system being offered to law enforcement agencies. Hunt, 54, spoke with Computerworld senior editor Sharon Gaudin on how the cops chase the robbers who are up on technology.

It's rare to find dope dealers using computers. Now it's pretty common. They use them to keep up with a vast amount of money or property they've acquired, or money owed to them, or (to track) who has what coming to them. And a lot of the [material is] encrypted, which is a big problem for us.

Q: How did law enforcement respond?

A: We had to develop the ability to get information out of their systems. It's become a law enforcement art. It's very difficult to compete with these

guys without the best computer people. How do you catch the bad guys who can afford better talent than the government can sometimes?

Q: Do you have an example?

A: We did a raid in Phoenix. It was a money laundering deal, and we found in the computer a "whom it may concern" letter that (the suspect) had tried to bury. It said that he was dealing with bad guys and this is who they are and what they've done. He had been keeping it for protection.

Q: How is the profile of electronic crime changing?

A: There's still an awful lot of kids and computer types out there trying to prove a point. But industrial espionage is a growing arena. As the globalization of the economy and of monetary systems increases, [so does] the potential for attacks from foreign countries and businesses.

Q: Are U.S. companies prepared for that?

A: A lot of people have such poor security, they don't even know they've been [hacked]. Some companies still put information up [online] and hope nobody finds it. ■



RON GRIFFIN says Home Depot would rather do the work itself than "turn the keys over to consultants."



GTE's JACK HUNT says IT has become a law enforcement art.

Q: How are criminals using computers?

A: A few years ago, it was



# LOW-TECH MARKETING

Net retailers finding success with traditional marketing methods

BY SHARON MACIELIS

**M**ANY of the strategies that regular retailers use are proving effective in enticing consumers to buy online.

Online retailers say print and television advertising, mail campaigns and other increasingly sophisticated marketing techniques helped drive shoppers to their sites this past holiday season.

"It's a blend of both off-line and online vehicles that worked for us. A year ago, that wasn't the case," said Cliff Sharples, president and CEO of Garden Escape Inc. (www.garden.com) in Austin, Texas.

As the Internet matures and more Americans go online, Web businesses must seek

customers in more traditional ways, said Elaine Rubin, vice chairman of the industry trade association Shop.org. "You need to reinforce your message in multiple ways," she said.

"Brand-building is more effective for us off line currently," said Louise Cooper, vice president of worldwide marketing at Cyberian Outpost Inc., an Internet computing retailer in Kent, Conn.

Like their physical-world counterparts, Web retailers are becoming more savvy about how they spend their marketing budgets — both online and off.

Cyberian Outpost remains committed to online advertising — but to target potential buyers, not just boost name recognition, Cooper said. That means placing ads more strategically on

areas of the Web where would-be purchasers are likely to be. "We have become a lot more selective about the impressions we buy," she said.

And AutoConnect LLC in Atlanta is working with outside agencies to test different online ads at hundreds of sites, to see what combinations are most effective in getting the biggest impact per dollar.

"Everybody's building up their direct marketing experience," Sharples said. "Even six months ago, we weren't thinking about that."

Cyberian Outpost had a higher-than-expected response rate — more than 3% — to two recent E-mail campaigns. "It really changed the expectations that we have for direct mail," Cooper said.

Music retailer CDNow Inc. has become

much more sophisticated in its use of direct mail, using technology to help predict from past behavior what a customer might like to buy, said Samantha Liss, director of brand marketing at CDNow (www.cdnow.com). It uses software from Net Perceptions Inc. in Eden Prairie, Minn., to track stated preferences and past purchases, but it targets only those who have chosen to receive mailings, she said.

## Why They Went Online

Primary reasons consumers shopped online this past holiday season

Saved time	36%
Saved money	15%
No crowds or clerks	11%
Better product choice	10%
Fan to buy online	10%
No driving or parking	8%
Easier shopping or delivery	5%
Other	7%

Source: Survey of Web online shoppers  
Source: Nielsen Online, February 1999

## Investment Site Tweaked For Plain-English Queries

Scudder's 'financial concierge' has answers

BY SHARON MACIELIS

In the race to attract and keep customers in the hotly competitive online financial services market, Scudder Kemper Investments Inc. has overhauled its Web site to incorporate some fairly cutting-edge technologies — including natural-language recognition.

The revamped Scudder site unveiled last month features a "financial concierge" that will answer typed-in, plain-English questions such as "How do I qualify for an IRA?"

"We are not doing this as a technology exercise," said Jiang Jeon, vice president and director of electronic commerce at the Boston-based firm. "We are focusing on the online cus-

tomers experience."

In addition to the new search capabilities, users can now create a personalized portfolio on the Scudder site that includes holdings in non-Scudder accounts. Once set up, the portfolio can determine values, performance and overall asset allocation. Those functions compete with third-party financial sites such as Quick-encom that offer portfolio services. Few brokerage sites offer such tracking for securities held with competitors.

If users choose to register their financial

data, it can be saved in planning calculators as well as portfolios.

The site can later notify users if there's a change in tax laws that affects them, such as an increase in maximum allowed income for individual retirement account (IRA) contributions, Jeon said.

### A First in Finance

"Scudder seems to be pushing some bounds," said Paul Hagen, an analyst at Forrester Research Inc. in Cambridge, Mass. Although a few search engines and Dell Computer

Corp. allow natural-language queries on their sites, Hagen said he believes Scudder is the first in financial services.

Scudder is using Dynamo from Art Technology Group in Boston to create personalized pages, and it manages content with software from Documentum Inc. in Pleasanton, Calif. The natural-language technology comes from Ask Jeeves Inc. in Berkeley, Calif., which runs its own Web search services (Ask.com and AskJeeves.com) and licenses its capabilities to several other sites.

The natural-language technology doesn't yet work well enough to give relevant answers for all questions and will need a few more revisions, Hagen said, but the early efforts are an important first step.

"I think we are going to see a big shift in the way sites interact with people," he said.



SCUDDER's revamped Web site can now manage holdings in non-Scudder accounts

## BRIEFS

### Airline Web Users Mostly Just Browse

Visitors to airline Web sites are more likely to seek information than buy tickets, according to a new survey. Less than one-third of airline surfers have bought a ticket on an airline site, but 64% said they expect to do so in the future, according to a survey of 15,000 visitors to five airline sites conducted by NPD Online Research in Port Washington, N.Y. Most were checking flight availability, frequent-flyer programs or general information.

### Online Auctions Growing Fast

Online business-to-business auctions will sell \$3.2 billion worth of goods by 2002, according to a new study by Jupiter Communications Inc. in New York. Those numbers suggest that online auctions may give retailers a better way to liquidate excess inventory than more traditional channels, according to the report, which predicted that 6.5 million Americans will buy from online auctions in 2002, up from 1.2 million last year.

### Utilities Online

Southern California Gas Co. has announced the expansion of its Energy Marketplace Web site to let consumers and businesses acquire electricity from California suppliers. Plans call for the electricity service to expand to other states. Last year, the utility launched www.energymarketplace.com for natural-gas pricing and procurement.

### Web Market Share

WebTV's market share may be slender, but it's growing rapidly, according to a survey of more than 1,400 Web sites by AdKnowledge Inc. in Palo Alto, Calif. WebTV, Microsoft Corp.'s Internet-based Internet access service, now holds a 2.9% share of the overall market, up from 0.6% at the end of 1997.

The survey also showed that Netscape Communications Corp.'s browser share declined from 67% to 46.3% during 1998.

## BRIEFS

## Y2K Nightmares

Year 2000 issues that scare CFOs the most:

Inability to deliver products or services to customers	77%
Failure of internal computer or mechanical systems	44%
Corporate liability	38%
Instability of domestic financial markets	35%
Dealing with IRS and other state and federal agencies	27%
Inability to receive deliveries	26%
Instability of overseas financial markets	18%
Personal liability as officer of the company	6%

Source: Survey of 68 chief financial officers; respondents were asked to identify the three worst problems.

## Outsourcer Does Job

Kelly Services Inc., a Troy, Mich.-based temporary staffing services company, outsourced its year 2000 code review and auditing to Aylmer Software Corp., in Charlotte, N.C. Aylmer reported that it has completed the job, fixing 3.1 million lines of code.

## Poised for Disruptions

Stirlingmore Publishing Co. in Abilene, Texas, has published a training program aimed at helping employees prepare for business disruptions caused by the year 2000 date change. More information about the package is available at [www.stirlingmore.com](http://www.stirlingmore.com).

## Y2K Down Under

New Zealand's Y2K Readiness Commission is set to launch its first awareness campaign by sending out 300,000 information packets to businesses with fewer than 50 employees. The companies—which make up more than 80% of New Zealand's businesses—will receive a survival guide and brochure. The materials also are available at [www.y2k.govt.nz](http://www.y2k.govt.nz). "The top priority is what New Zealand is doing and what we are taking to the rest of the world," said Clare Pinder, director of the commission.

## WHAT'S 'READY' MEAN, ANYWAY?

Lack of standards causes definitions of 'Y2K-compliant' to vary

BY THOMAS HOFFMAN

**Y**OU HEAR it all the time from business partners, suppliers and vendors when asked about their year 2000 project status: We're done. We're compliant. We're ready.

But what does that really mean? With no IEEE or international standards to define what being year 2000-compliant is, every company has a different definition. And clarifying what your business partners and suppliers mean is becoming a sticky issue as companies seek to determine one another's year 2000 readiness and begin testing against one another's systems.

"It's a huge problem," said Dave Wessels, a product engineer at Tommy Inc., a Cincinnati-based maker of a PC-based year 2000 remediation package called Comp2000.

Organizations are really finished with year 2000 work only when they can fit the software, test it and get it back into production, Wessels said. "If you're not back into production," he said, "you're not done."

Travel service Amadeus National Marketing Cos. sees it a little differently. "We might have a workstation out in the field that isn't year 2000-compliant, but the reservation will still [be processed]," said Jim Davidson, president and CEO of the Miami-based company.

But if a piece of Amadeus-supplied equipment, such as a customer's fax software, doesn't work as it should, Davidson said, "you can have an interesting debate over whose problem it is."

For some managers, the toughest part is getting vendors to make a commitment about when they expect to be done and ready to test. "The biggest thing we've had trouble with is



AMADEUS CEO Jim Davidson: Noncompliant workstations won't halt business

pinning [vendors] down with their expectation to be ready," said Brent Wyrick, an applications manager at The Grange Mutual Casualty Co. in Columbus, Ohio. Fortunately, Wyrick said, "we only work with two vendors."

But Prudential Insurance Company of America has 309 "critical" partners it relies on for everything from electricity to paper, said Irene De, director of corporate information

technology, at the Newark, N.J.-based insurer. And Prudential has replaced at least nine of those vendors because it wasn't satisfied with their year 2000 readiness.

One of the worst fears a CIO can have is that one of his largest customers will show up and say, "Show me that you're year 2000 ready," said Brad Kerr, CIO at Ha-La Industries Inc., a Niles, Ill.-based specialty advertising company.

To make sure that the most critical of Ha-La's more than 5,000 vendors and suppliers are going to meet its definition of done, Kerr is advising his company's purchasing managers to focus on specific companies to ensure readiness.

"I don't relish spending a lot of time and effort surveying 5,000 vendors," Kerr said. "But if we're developing a catalog for Ford Motor for the next two years, we have to make sure we can fulfill that contract." ■

## Hospitals Focus on Contingency Planning

Mock trial points out medical perils of Y2K-related outages, system failures

BY RICK RAJA

Worried about year 2000 lawsuits? Consider this scenario: A woman is hooked up to a ventilator on Dec. 31, 1999. At midnight, a power surge temporarily shuts down the hospital's electrical equipment. No one checks on the patient for several minutes. Despite a nurse's best efforts, the patient dies. Her survivors sue the hospital for \$3.5 million.

This hypothetical case was presented in a mock trial last month as part of a daylong

meeting of the Rx2000 Solutions Institute ([www.rx2000.org](http://www.rx2000.org)), a Minneapolis-based nonprofit organization. The case suggested that the woman would have survived had the hospital foreseen the need for much closer patient supervision during the year 2000 rollover.

It also illustrates why the health care industry is placing more emphasis on contingency planning.

The Odin Group, a research and advisory service for health care information technology, is developing and implementing contingency plans for mission-critical systems at health care companies.

"While most organizations are aware that their systems may fail due to the year 2000 bug, many have not examined how their actual operations will be affected," said Noel Williams, senior vice president of information systems at Columbia/HCA Healthcare Corp., which is involved in the initiative.

The Odin Group ([www.odin-group.com](http://www.odin-group.com)), based in Nashville, said the average hospital has

Many [hospitals] have not examined how their actual operations will be affected.

NOEL WILLIAMS, COLUMBIA/HCA HEALTHCARE

150 critical systems vital to patient safety.

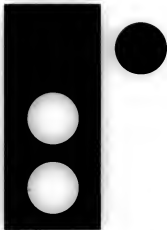
One IT manager attending the Rx2000 meeting, Juanita S. Brassard of New York Presbyterian Hospital, suggested that hospitals could train personnel from noncritical departments—such as billing and marketing—to perform tasks such as relaying messages should telecommunications services go down.

Brassard said contingency planning should involve every one in a hospital. After all, "I can't tell an [intensive-care unit] nurse what she needs in her unit," she said. ■

## SNAPSHOT

Fortune 500 rank	25	27	47
Spending as of Sept. 30, 1998	\$400M	\$390M	\$300M
Estimate of total year 2000 cost	\$600M*	\$500M*	\$200M

SOURCE: JAMES H. O'NEILL, NEWARK-BASED RISK-REDUCTION AND MITIGATION CONSULTING



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# You'll be doing WHAT on Jan. 1, 2000?

Think you'll be in good hands with your contract or vendor support staff come Dec. 31, 1999? All depends. Here's what a few IT professionals already have planned for that day By Fawn Fitter

**H**Y, LET'S FACE IT: AS IT professionals, we've heard all the horror stories about the year 2000 problem. The following are just a few of the scary scenarios rumored to result from the millennium bug:

- Airplanes will drop out of the sky.
- Power and plumbing around the globe will be cut off.
- Civilization will come crashing to a halt.

Of course, as cocktail heads, we've also assured ourselves that we've got — or will have — the situation well in hand.

Still, some of us will take sensible precautions (a little canned food, some cash, backups for our hard drives) to prepare for a rocky week or two.

Some companies are planning to hold alcohol-free New Year's Eve parties at their data centers for their year 2000 remediation teams.

That way, the teams will be sober, on-site and ready to swing into action in the event of a glitch. And if the power's out, they'll be unable to go home until they fix whatever's gone wrong.

Most year 2000 teams won't be in such unenviable situations, though. Computerworld asked a few year 2000 pros what they plan to be doing on Jan. 1, 2000.

*"Personally, I'll be at home, celebrating in an immense drunken stupor.... Of course, in 2038, I'm hiding under the bed."*

— Alex Williams, technical support engineer, Compaq Computer Corp., Atlanta

*"I read yesterday that every hotel room in Las Vegas is taken that night, so obviously I need to start planning now! I will definitely not be lingering near the phone."*

*"If you haven't solved your problem by that night, no amount of time on the phone will fix it."*  
— Andy Diamondstein, associate analyst, Giga Information Group Inc., Cambridge, Mass.

*"I'm not saying I want bad things to happen, but I'll be looking to see whether a lot of lawsuits have been filed so I can sell a few copies of our Y2K Legal Guide."*

— Bruce S. Brumberg, publisher, Brumberg Publications, Brookline, Mass.

*"I'll probably have my kids wake me up so we can all blow horns and kiss each other, just like they did last year...."*

*"Most of the world will be in the year 2000 before it reaches California. They drop the ball in New York at 9 p.m. our time."*

*"If there are problems, we'll see*

*them before midnight."*

— Bill Braasch, consultant, San Francisco

*"I expect to have already moved out of the big city for reasons other than Y2K. However, I'll probably be at my in-laws' place, since they have geosolar heating, with a little extra gasoline, a few hundred dollars in cash and some food put away for a few days, just in case."*

— Jason Smith, consultant, Quantum Solutions, Toronto

*"I plan to have \$1,000 in cash, a full tank plus a five-gallon can of gas and some batteries for my shortwave radio. If the power goes off... I'll wait two days for it to come back on. If it doesn't, I'll grab the car and immediately drive south to hang out with my parents."*

— Stefan Kozłowski, consultant, Belmont, Mass.

*"I'm expecting... a tough start to the year."*

*"The chances of*

*a terrible doomsday scenario are the same as the chances that absolutely nothing will happen, which is to say, zero."*

*"I think that means we'll have stutters and spurts. A lot of the things we think will work, won't, and a lot of the things we think won't work, will... I'll be at home with my wife, and we'll probably have some guests over. I'll be prepared for disruptions. We'll just sit it out and hope for the best."*

— Sean Baenen, director of consulting, Global Business Network, Emeryville, Calif.

*"I'll be standing in my backyard waiting to see if an airplane drops out of the sky. I live near O'Hare, and they keep telling me that's what's going to happen."*

— Justin Churn, consultant, Y2K Solutions, Chicago

*Fitter is a freelance writer in Boston.*



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# FIVE FOR THE BOOKSHELF

Looking for books to navigate corporate waters as well as E-commerce seas? Here's a handful of new titles for IT managers By Leilani Allen



**FINDING & KEEPING GREAT EMPLOYEES**  
By Jim Harris  
and Joan Brumit  
Amacom Books,  
240 pages, \$24.95 hardcover

This is a must-read, if for no other reason than it offers confirmation that there are companies out there that have discovered the secret behind recruiting and retaining top performers. The authors, both consultants and former human resources and training executives, offer a straightforward premise in Section 1: "Organizations most successful in their staffing and retention practices are those that leverage their core culture to attract and retain like-valued employees."

In Section 2, they identify and describe in detail four successful cultures: customer service, innovation, operational excellence and spirit. Sections 3 and 4 show how to hire and retain staff in each culture, illustrated with examples so effectively used that I immediately wanted to do business with many of the companies cited. For example, Eckerd Corp.'s pharmacies show potential employees a video that illustrates standard cash-register tasks and behind-the-scenes grunt work such as unloading trucks and cleaning bathrooms, but also gives viewers an idea of the kind of "can-do" attitude the company is looking for.

The final section offers practical hints.



**THE 2,000 PERCENT SOLUTION**  
By Donald Mitchell,  
Carol Coles and Robert Metz,  
Amacom Books,  
256 pages, \$24.95 hardcover

The authors, consultants Mitchell and Coles and business journalist Metz, tackle the "stalled" thinking that characterizes so many corporate cultures. They devote chapters to each type of stall they have identified: Tradition, Disbelief, Misconception, Unattractiveness, Bureaucratic, Communication and Procrastination. Any information technology manager is likely to recognize all of these.

Chapters 9 through 16 identify "stallbusters"—seven steps for overcoming those problems. Here, the tale is more familiar: Measure, establish best practices, find the right people and motivate them to do right. Chapter 9 is an excellent source for overcoming one's own "stalls." The book is enlivened with brief vignettes incorporating historical examples.

One of my favorite examples is used to illustrate the dangers of relying on false assumptions. In the infamous "New Coke" fiasco, the The Coca-Cola Co. relied on taste tests that clearly showed consumer preference for the newer, sweeter formula. But they never told these consumers that the beverage would replace the familiar brand to which they had strong emotional ties. The result? A consumer revolt.



**ELECTRONIC COMMERCE: TECHNICAL, BUSINESS, AND LEGAL ISSUES**  
By Nabil Adam, Oksay Dagrmachi,  
Aranya Gangopadhyay,  
Virena Yeshu, Prentice-Hall,  
209 pages, \$39.99 hardcover

On the technology front, electronic commerce still is the dominant topic: I would recommend this book (written by four college professors) to IT managers charged with taking their corporate Web sites from online brochures to true electronic-commerce venues — and especially to those who need to get their business colleagues to understand the effort. Despite a textbook-like tone, the book is well-organized and avoids a good deal of the "business revolution" hype that mars other books in this category.

Chapters 1 and 2 describe electronic-commerce services and components; Chapter 3 covers its use in various industries; chapters 4 and 5 cover technical issues such as protocols, interoperability, workflow, languages and security; and Chapter 6 is a review of legal issues. But the final chapter on future trends is too cursory to be of much use. Another differentiator for the book is that it includes a CD-ROM with evaluation copies of IBM's Net.Commerce and VisualAge for Java software. The software can be used to create a prototype electronic-commerce Web site.



**NET WORTH**  
By John Hagel III and  
Marc Singer  
Harvard Business  
School Press,  
256 pages, \$24.95 paperback

What other challenges does the Internet hold? The opportunity to become an "informediary," according to Hagel and Singer. These McKinsey & Co. consultants define an informediary as "a business that helps customers capture, manage and maximize the value of information about themselves and deny vendors access to this information."

While acknowledging that no companies fill this role right now, the authors argue that there's value in facilitating the Net's shift of power from vendor to consumer.

Chapters 1 through 4 lay out the concept and identify promising markets and potential players. The next four chapters describe potential entry strategies. The remaining chapters are largely tangential, but the appendix provides an overview of tools for informediaries (including "reverse cookies" that track where the consumer has been), profiling tools that allow collaborative filtering to make product recommendations and privacy protection aids such as cookie suppression, E-mail filters and anonymous payments.

Allen is a partner at Summer Point Consulting in Mundelein, Ill., which specializes in strategic planning, process redesign and technology assessment services. Contact her at [leilani@spc.net](mailto:leilani@spc.net).



**QUALITY INFORMATION AND KNOWLEDGE**  
By Kuan-Tsao Huang, Yang  
W. Lee and Richard Y. Wong  
Prentice-Hall,  
186 pages, \$40 paperback

This is a complement to Net Worth. Computers churn out tons of data daily, but why is so little of it truly useful to anyone? The authors believe that information should be managed as a product and knowledge as an asset.

The first three chapters explain these concepts and include an insightful discussion of the dimensions of information quality (IQ) — describing it as complete, unambiguous, meaningful and correct. Deficiencies in IQ have to be corrected in order for information to be used as a base of knowledge. Chapter 4 describes a proprietary methodology for measuring IQ; chapters 5 through 7 discuss how to create organizational knowledge and establish knowledge management; and chapters 8 and 9 discuss how the concepts apply to intranets and extranets.

This book is of value to IT managers who are trying to provide an overall framework that incorporates a Web site, intranet, data warehousing, data marts and executive information systems that truly attempt to turn information into knowledge. ■

## NEW REPORTS

## Best HR Practices For IT Services

G2R Inc., in Mountain View, Calif., released "HR Best Practices for IT Services: Recruiting and Retention Strategies" last week.

The report — based on primary research with 21 information technology services organizations — addresses strategies for attracting and retaining a skilled workforce amid an IT labor crunch.

The report costs \$2,000. G2R  
www.g2r.com

## Planning the Move to Java

Patricia Seybold Group has released the "Java Collection," a research package designed to help users plan a move to Java.

The collection is based on two years of research and offers 80 research articles from 1997 and 1998, including six case studies on the pioneering efforts of companies in using the Java language, the Enterprise JavaBeans environment and back-end Java servers. The Boston company said the research is intended to help

readers determine if their developers are ready for Java and where Java fits into their organizations.

The package costs \$1,995. Patricia Seybold Group  
www.psgroup.com

## IT Spending Patterns

Meta Group Inc. has announced "Industry Watch 1998," a survey of the 1998 priorities and spending patterns at 426 IT organizations worldwide.

According to the Stamford, Conn., company, the study shows an overall increase in IT spending as a percentage of gross revenue but a "substantial" decrease in the spending growth rate from 1996-97 to 1997-98.

The study will be offered free to attendees of Meta Group's Metropolitan '98 forum this week. After the show, it will be available as part of a larger, \$2,500 study called "Worldwide Benchmark Report."

Meta Group  
www.metagroup.com

## Technology Use at Small Businesses

International Data Corp. last week released "Small Business 1998 World Market Profiles 1998," a report on the use of small-business technology in various industries such as finance, insurance and manufacturing.

According to the Framingham, Mass., company, the report reveals that the average financial services firm spends close to three times as much on technology as do other small businesses. The typical banking/finance small business (those with fewer than 100 employees) spends \$20,294 annually on technology, and the insurance industry spends \$8,294 and manufacturers spend \$7,822.

The report costs \$4,500. IDC  
www.idcsearch.com

PAUL A. STRASSMANN

## Women take over

**W**OMEN ARE NOW the dominant force in the information economy. They constitute the majority of the users of information technology. That's not the case with the pushers of computers. They are overwhelmingly male. Computer people talk about the "information economy" or "information society," but almost no one mentions the people who make it up.

The just-published "Statistical Abstract of the United States" (U.S. Bureau of the Census) may force us to revisit what the information economy is all about. IT folks invoke Moore's Law, cybercommerce and data connectivity when discussing the information economy, as if it were only about hardware and software.

They also should consider the changes in the socioeconomic structure of the U.S., where their technological marvels will have to be accepted.

The information management workforce — unlike those who manage IT — is made up of executives, managers, professionals, sales and administrative personnel.

The people in these occupational categories create, distribute and consume information as their primary concerns. (Noninformation occupations, such as technicians, service personnel, production workers and farmers are increasingly engaged in part-time information processing tasks, but I don't count that.) The information management workforce now makes up 55% of U.S. employment and earns a remarkable 64% of all wages and salaries.

The information workforce has also been growing twice as fast as all other occupations and getting better raises than everyone else.

Information management is where women are now building their careers. The statistics show their remarkable success.

There are 5.6 million more women than men in information management occupations. Are they, as many believe, in mostly clerical jobs? The facts suggest that's not so:

By 1996 (the last year for which such numbers are available), women had attained parity in the higher-paying managerial and professional occupations. There were 13.3 million women and 13.9 million men in this job category.

If you look at pay, women are gaining there as well. As compensation for women picks up with seniority, and if current growth rates continue, one can expect that most of the income of career women will come from occupying information management positions.

Meanwhile, the computer industry, especially in marketing and sales, continues to be male-dominated: The female participation rate in IT jobs declined from 31% in 1983 to 29% in 1996. There are more influential positions available

to women in the huge (59% of total employment) "IT-using" information management sector than in the smaller (1.3%) "IT-producing" sector.

I've long thought that the computer industry's combative marketing tactics are better explained by the testosterone quotient of male executives than the MIPS they have to offer. Such tactics make less sense now that more of the executives who buy and live with computer systems are women.

Ms. MIS columnist Kathleen Melymuka noted that young women are more interested in being the drivers of IT than the mechanics (CW, Jan. 18).

As power over technology shifts to those who apply IT, it seems they are making the right bet about where the best prospects will be. For every dollar U.S. industrial corporations spend on IT, they will spend 10

Information management is where women are building their careers.



on information management.

Anyone thinking about the future of the information society should stop focusing on the ambition of the mostly male technology pushers and heed the concerns of the majority of those who will pay for and work with IT. ■

Strassmann (paul@strassmann.com) has been writing for years about the importance of total life-cycle management of IT costs. He is still waiting for a new generation of business executives to adopt that view.

UNITED STATES	
Ph.D.	1.3%
Master's	16.8%
Bachelor's	68.5%
Tech school	24.6%
No degree	7.8%
REST OF WORLD	
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Master's	19.6%
Bachelor's	57%
Tech school	25.6%
No degree	7.2%

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and an early jump in  
growing Staples is cat

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# APLES

## At the edge in revenue and IT Internet commerce. But fast- catching up. By Rochelle Garner

**R**OUNDING THE CORNER and into the middle stretch, here comes Office Depot Inc., the nation's leading vendor of office supplies. Pulling up on Office Depot's flank: Staples Inc., the feisty No. 2 player that tried to acquire its bigger rival two years ago.

Talk about a horse race! In every quarter during the past 18 months, Office Depot, in Delray Beach, Fla., has led its Westboro, Mass.-based competitor in sales. Yet when it comes to profits, it's continually exchanging the lead with Staples. Perhaps that's why Wall Street analysts tend to recommend smaller Staples over its erstwhile sweetheart. Staples — with a 14.6% return on equity vs. Office Depot's 8.4% — just seems to be run better in their eyes. (The higher the return on equity, which is net income divided by shareholders' equity, the better a company is at translating stockholders' investments into profits.)

But now, a new competitive front has opened up that's particularly well-suited to the office-supply business, with its constant aim to trim shipping costs and distribute low-margin, commodity products. That front is the Internet.

"We talk to both companies and both absolutely view the Internet as a critical source of growth — squalling big money along the way," says Roy Satterthwaite, a research director at Gartner Group Inc. in Stamford, Conn.

During the past year, both companies have gone live with private, business-to-business Internet sites for their large corporate customers: Office Depot's QuickOrder and Staples Network Advantage Plus (SNAP). Both also now offer public Internet sites ([www.officedepot.com](http://www.officedepot.com) and [www.staples.com](http://www.staples.com)) for their small office/

home office customers. And though neither will reveal what it has spent so far, analysts estimate that each has invested nearly \$10 million in efforts to encourage customers to place orders online.

How well they succeed largely depends on how well each leverages information technology. Here, Office Depot appears to be ahead. One indication of that came before the Federal Trade Commission halted the pair's merger plans in July 1996. The companies had decided that only Office Depot's IT organization — with its 450-person staff, three clustered mainframes and homegrown logistics, replenishment and merchandising systems — would survive. Bill Seltzer, Office Depot's executive vice president and CIO, was to have been CIO of the whole company. "We were perceived to be ahead even then," Seltzer says.

### Easing Bureaucracy

Consider the prosaic pencil. A package of a dozen retails for slightly more than \$2. But when large organizations order by the gross, they want hefty discounts — as well as price breaks on paper clips, staples, Post-It Notes and other office supplies.

Both Office Depot and Staples have negotiated specific pricing contracts for their large corporate customers — spelling out every item employees are allowed to buy and their respective corporate discounts.

"Each online catalog is a new catalog for every customer, with specific sets of items and prices," says Chris Long, who as director of electronic commerce at Staples oversees SNAP. Customers lock in to the most advantageous prices and put the brakes on big-ticket products. The average purchase-order amount is \$120. A typical monthly order from each large customer

with hundreds of users is between \$2,000 and \$8,000.

The trouble is, corporate customers are awash in bureaucracy and paperwork. Some workers are allowed to spend more on supplies than others. Many purchases must be blessed by escalating levels of supervisors. And the staff time expended to authorize purchases adds up: The National Purchasing Association estimates that companies spend an average of \$150 to process each order — even if the purchase amount is only \$100.

That's where QuickOrder and SNAP are designed to help. In essence, both automate the routine. Customers link in from their own intranets, traverse the Internet's public lines and, using their passwords, sign on to private Internet Web sites. "Each company sends its purchasing rules for each user," Long says.

"We know if a company restricts the purchase of certain products and what the user does or doesn't have the authority to buy," says Monica Luechtefeld, Office Depot's vice president of marketing, who's in charge of QuickOrder. "If a purchase exceeds the cost that's been authorized for a particular user, the system E-mails the appropriate managers for approval, plus sends notice of the purchase to the company's purchasing department."

The result: lower costs for processing a purchase order. Office Depot and Staples say some customers have reduced the cost of each transaction \$25 to \$35 per purchase order.

QuickOrder has features that SNAP still lacks, however. For example, when any user at a large company signs on to QuickOrder, that password triggers a host of activities — telling Office Depot where the user is located and checking the nearest of

its 21 warehouses for the ordered stock. As users check for items, they immediately know inventory levels, ship date and a history of what they've ordered. They also can track the order at their desks.

SNAP will offer customers a similar method to track shipments later this year.

Today, Office Depot's electronic commerce system handles 40,000 users in 5,800 companies. Every week it adds 200 companies representing 700 to 1,000 new users. Staples will reveal its numbers, saying only that it expects to see a 25% increase in business in the coming year. Neither will say what percentage of total revenue stems from their electronic business-to-business Web sites.

#### Being Public

Both QuickOrder and SNAP were designed for users who just want to access their sites, order and get out quickly. The focus is to reduce the process to as few clicks as possible, because corporate buyers work from a condensed list of available products.

Not so with their competing public Web sites, which are intended for small office/home office customers and consumers and try to spur impulse buys.

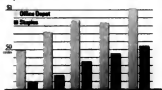
## How They Stack Up

	STAPLES	OFFICE DEPOT
Sales	\$5.8B*	\$6.7B**
Increase over previous fiscal year	30.9%	10.7%
Employees	32,296	35,000
Net income	\$130.9M*	\$159.7M**
Earnings per share	53 cents*	\$1.01**
Return on equity	14.6%	8.4%
Return on equity vs. industry	140%	63.2%

\*FISCAL YEAR ENDED AUGUST 1998. \*\*FISCAL YEAR ENDED OCTOBER 1997. SOURCE: COMPTON & CO. AND THE STANDARD FINANCIAL SERVICES & DATA GROUP & CO.

## On the Rise

Staples' annual earnings per share has quadrupled since January 1994; it's now more than half of Office Depot's.



Last five reported fiscal years. \*Office Depot's first year with a Standard and Poors' Best year with a January of the following year. SOURCE: COMPTON & CO. AND THE STANDARD FINANCIAL SERVICES & DATA GROUP & CO.

It's here at their public sites that the two companies are waging an equally public war. Office Depot launched OfficeDepot.com in January 1998, 11 months ahead of the Staples.com debut. Their shared aim is to make the shopping experience so delightful that their smaller customers won't bother looking elsewhere on the Internet to save a few pennies.

Each site offers valuable differentiating features not found at the other. Staples.com provides three different ways to shop, depending on whether customers know exactly what they want, merely have an idea or just want to look around. At OfficeDepot.com, shoppers pretty much know what they want.

"I think that while the execution may not always work, Staples has done a good job of trying to recognize different shopping needs," says Nicole Vandenberg, director of executive research at Jupiter Communications Inc. in New York. "That's important, since most online sites now are primarily order takers. But brick-and-mortar companies have a fine art of making sure you consider something other than what [you] came in for. Now the challenge is to take that to online buying."

That's where good use of IT comes in. Order a new laser printer or handheld electronic organizer, for example, and both sites will immediately suggest a list of compatible supplies, from toner to cables. Where they differ: From Office Depot's site, customers can check warehouse inventory in real time, cancel an order, track an order and arrange for call and return. That's not the case with Staples.

At Staples' site, customers can compare all products in a category, set up e-mail reminders for reordering products, create lists of products for, say, new employees and set up group accounts for use by office managers. Those features don't exist yet for Office Depot's customers.

Regardless of the feature sets, such capabilities require an extraordinary amount of integration between the site and each company's back-end system. "Both Office Depot and Staples have to tie together their legacy systems with their real-time activities—like correlating customers' in-store purchases with what they buy online, inventory monitoring and purchase-order workflow," Gartner's Satterthwaite says.

At Office Depot, systems technology includes three clustered IBM MVS mainframes running fully integrated inventory, accounts receivable, accounts payable, replenishment, financials and merchandising programs. The company built its own data architecture. CKO Seltzer says, allowing it to buy only the best applications and interface them with its own. Office Depot's entire applications portfolio is only 4 years old, according to Seltzer.

Staples is now building its target architecture. The components: An IBM AS/400 to run its merchandising software from JDA Software Group Inc.; three Hewlett-Packard Co. Unix machines to handle Oracle Corp. Financials, PeopleSoft Inc. HR, customer marketing information and campaign management software; and IBM Netfinity boxes running Windows NT for its point-of-sale software from Unlimited Solutions. MicroSoft Corp.'s SiteServer 3.0 enables Staples' customers to arrange e-mail reminders and set up group accounts.

Of course, a system's components are only one part

of an IT organization's effectiveness. The true measure lies in the implementation. Unfortunately for spectators of this race, that aspect remains veiled—even to those analysts whose job it is to cover the two companies. No one really knows how well either IT organization is doing its job.

All that's really known is that such systems aren't cheap and they require the endorsement of top executives. Each company has that backing. At Office Depot, the first topic at the weekly executive committee meeting centers on technology projects and their business impact. "I know of no other company [in which] IT gets that kind of attention," says Seltzer, who's a member of the executive steering team. "We are viewed as that strategic."

Staples' executives have taken a more public tack in demonstrating the value they place on the Internet. In December—only one month after launching its public Web site—the company announced it would make Staples.com a separate business unit responsible for its own success. Further sweetening its Internet efforts for this year, Staples allocated an additional \$10 million to \$12 million for Staples.com on top of the \$10 million it already had earmarked for the year.

"Companies often have to make a big investment in their Web presence, and that's not always the easiest thing to do—from either a political or profit-and-loss perspective," says Paul Cook, an analyst at Munder Capital Management, which oversees the Munder NetNet Fund of Internet companies. "That's why an autonomous unit [such as Staples.com] will fare better than a captive unit, because all of those things have to be approved by people used to doing business the brick-and-mortar way and may not see the potential return on investment."

Staples is now neck-and-neck with its bigger rival in the race for Internet customers. "I see lessons in the office superstore business," says Jeff Levitan, newly named head of Staples.com. "There were 30, and now there are 33 [including OfficeMax Inc.], which had 1997 sales of \$3.8 billion. Those who survived understood the customer, were more aggressive than the others and were well-capitalized. I suspect we'll see the same thing in this market."

Still, the question remains whether Staples has been materially hurt by being 11 months behind Office Depot in getting a public site online. Analysts don't have an answer. "If you have a strong brand name and can afford to wait, why not learn from others' examples?" says Preston Dodd, an analyst at Jupiter.

On that point, all analysts seem to agree. The reason: No one anywhere has a handle on grabbing customers and turning a profit using electronic commerce. Despite the big bucks being spent, every company still is in the early stages of experimentation. Who will cross the line first remains anybody's guess. All that's certain is that the players aren't even close to the home stretch.

"Both Office Depot and Staples are going in this real strong," Gartner's Satterthwaite says, but "it's impossible to say which horse is ahead of the other."

Gartner is a freelance writer in San Carlos, Calif. She can be reached at rgartner@well.com.

[Staples and Office Depot] view the Internet as a critical source of growth—spending big money along the way.

PAUL COOK, ANALYST,  
MUNDER CAPITAL MANAGEMENT

# RETENTION GETTERS

**F**ACE IT. Your most-valued IT staffers basically have their pick of *any* company that can promise an ample salary and bonus package. So why should they stay with you? What can you offer, or promise, to keep them from leaving for supposed greener pastures every six months?

With competition for qualified information technology professionals still at record highs, *Computerworld* asked six IT pros to reveal the nonmonetary perks that keep their staffers happy and on board. By Kim Fulcher Linkins

## Flextime

"We have flexible work hours so that people can pick their start and end times," says Dennis Shaw, CIO at the U.S. Patent and Trademark Office and U.S. Copyright Office in Arlington, Va.

"They can start from 6 a.m. to as late as 9 a.m. and then add eight, nine or 10 hours to that. We also have compressed workweeks, whereby if you work a nine-hour day, for example, you get a day off every other week. If you pick a 10-hour day, then it's a day off every week," Shaw says.

## Training

"If we want to pursue certain classes, [our company is] all for training," says Brett Conquergood, a Microsoft certified professional at Fruit of the Loom in Bowling Green, Ky. "[It doesn't matter] whether it's from a tech school or university, or even going to a Microsoft class for four days a week for a few weeks. They provide it.

They're very open-minded about any type of training."

## Telecommuting

"The benefit that I value the most is, my company lets me work from home," says Scott Lemmon, senior systems consultant at Dayco Products Inc. in Dayton, Ohio.

"I'm in the office about eight hours a week. I go in the office for meetings and to see people and things like that, and the rest of the time I spend down in my basement working," he says. "It saves the company money. They don't have to provide me with an office space. I think I'm more productive at home than I am at the office. Time is used more efficiently."

## Interesting Work

"IT personnel are usually more interested in the work than they are the money because the money's usually OK," says Jim Torch, director of technical services at Crawford & Co., a Tucker, Ga., insurance adjusting firm. "They want to stay busy. IT people

get bored real quick. [And they] tend to be very straightforward, so if they don't like something, they will let you know," he says.

"They want a variety of challenges rather than to work on the same system," says Bruce Shearer, senior programmer/analyst at Arkansas Farm Bureau Mutual Insurance Co. in Little Rock.

## Stability/Security

Shearer says he knew little about his company when he started. But "I've stayed long enough now that I feel I know enough about it that I'm not having to start over from scratch every day," he says.

"These companies may be hiring 300 and 400 programmers now, but in the near future, the year 2000 bug crisis will pass and are they going to be laid off?"

## Environment

"Do the people work as a team? Are they one-on-one? Are they gripey?" Conquergood asks. "And then, of

course, am I going to better myself by working for them, not just solve their problems, but better myself by learning and [trying new things]?"

"The environment is wonderful here. They're pretty laid back but still want things done correctly and as soon as possible," Conquergood says.

## Child Care

"The one thing that's big here is a child care facility, either on-site or close by that the company could help with," Shearer says. "We have a lot of mothers who are kind of torn between whether to be with their kids or not. [If there were a day care facility] on-site, it would be less likely that they would [leave for another job]."

## Different Technologies

"In my position, I have responsibility for several different sections, and I guess I get exposure to a lot of different things, from server operating systems on both Unix and NT to desktop operating systems," says Craig Murphy, director of computer services and infrastructure at El Paso Energy Corp. in Houston.

"I have a lot of involvement with the rest of the company because of Internet and E-mail issues. I would recommend

that you get into an area where there's a lot of flexibility and opportunity to work on multiple things. The more well-rounded you are, the more valuable you are," he says.

## Job Satisfaction

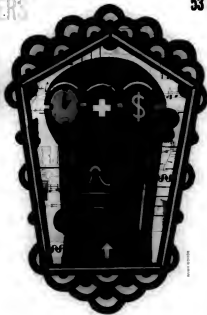
"I am staying here because I like our mission," Shaw says. "I'm already well-paid. It's not really a financial decision. I really like the job I am doing. We impact every business in America, and 40% of our business is foreign, so we have a global impact."

"And since we are applying technology to solve problems, that's also a very challenging objective," he says.

## On-Site Exercise Facilities

"That's probably one of the big things for programmers," Shearer says. "You sit all day. You don't really get very much exercise, and so that was one of the things that a local IS shop did for its employees. [It] put in an exercise facility where the employees could get away from their desk for 30 minutes or an hour and work out — to blow off some tension." ■

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# SOWING SEEDS OF SUCCESS

Few welfare-to-work programs specifically target jobs in technology. But the handful that do are now producing some very promising — very enthusiastic — IT workers By Alice LaPlante

ONLY WILLIAMS could tell you a few horror stories about life on the South Side of Chicago. About the violence, the drugs — and the endemic lack of economic hope among the neighborhood's inhabitants.

Williams now has a different story to tell. After struggling for years to get by — first working in a local fast-food restaurant, then running his own cleaning service — Williams is now an Internet systems developer at Manpower Inc. in Milwaukee.

Williams made that leap thanks to a local program founded specifically to get those at risk of city violence or drug dealers off the streets and into lucrative corporate information technology jobs. "I wasn't going anywhere," Williams says. "I was maintaining, but miserable. This really changed my life."

At age 34, Williams first heard about the Homeboyz Graphics

program, based in Milwaukee, from a neighborhood kid he had befriended. Williams knew nothing about computers or the Web. But he saw the program as a way toward economic independence. He threw himself into learning HTML, the Web programming language, Java and Visual Basic; performed internships at Amoco Corp. and General Electric Co.; and landed his permanent, full-time position 14 months ago. "The future looks very bright," he says.

## A Different Life

A number of public and private programs exist to ease the transition from welfare roll to wage-earner. So far, only a handful — Homeboyz is one of them — focus specifically on helping to train the economically disadvantaged for jobs in IT.

Father Jim Holuh, the founder of Homeboyz, chose that route for several reasons. First, he says, IT represents such a boom area of economic development. Sec-

ond, "it's exciting and interesting work, and — most importantly — it leads to a living wage," he points out. Holuh, a Jesuit priest, got permission to start the program "after burying too many gang members in the Chicago projects." He learned HTML, so he could teach it to others.

Since 1996, he has graduated 46 students and placed them in corporate jobs. The average salary: \$38,000. Not bad for former gang members, most of whom had never worked and many of whom had drug addictions, Holuh says.

"It makes tremendous business sense," says Sharon Canner, director of strategic information at Manpower. "There's a tremendous shortage of qualified IT workers. Anything we can do to broaden the applicant pool is very much a win for us — as much as for the individuals themselves."

"Generally, what you're finding is that employers take a first step by hiring workers for entry-level positions such as those in food

service, telephone call centers or administrative offices," says Bob MacArthur, chief operating officer at the Washington-based Welfare to Work Partnership.

Welfare to Work is a nonprofit group designed to provide support and services to private firms interested in hiring former welfare recipients. And with proper training, "companies are having enormous success with these workers," MacArthur says.

But "this is just a first step," says Kim Rhim, executive director of The Training Source Inc., a Seat Pleasant, Md.-based nonprofit organization that teaches basic computer skills to former welfare recipients.

Rhim says she's talking very basic computer skills. Although many of her students dream about IT careers, there's no quick path to them, Rhim stresses.

"We tell them, 'Learning is a lifelong process. We'll help you get a job to keep you stable. Then — at night or on the weekends — you can pursue your



future goals," she says.

Part of the reason that so few former welfare workers have so far made a successful transition to IT jobs — even entry-level ones — is the "work first" directive of the federal Welfare Reform Act. "We're supposed to get these people to work by whatever means is necessary. If they can only flip burgers, that's what they have to do. If they can only babysit, that's it," says Opal Evans, founder and executive director of the Women and Youth for Self-Reliance program in Phoenix. Her program provides basic computer training for people — mostly women — who want to get off public assistance.

Companies interested in cooperating even with the more sophisticated programs such as Rhim's or Evans' need to understand they won't be getting fully trained workers, but truly entry-level employees. Companies seeking a cheap source of labor or who need an IT worker to fill an immediate vacancy need to be

realistic. "This is not a quick fix," Rhim says.

And don't underestimate the amount of additional training that will be necessary, warns Gershia Coggs, director of the Computer-Related Training Center in Milwaukee, which has a similar program.

That's why most firms with welfare-to-work programs follow Sprint Corp.'s route.

Sprint provides enough training to bring individuals into entry-level jobs within its Kansas City, Mo.-based call center. It provides them with additional training, counseling and educational opportunities so they can advance into higher-level jobs, says Jerry Glassier, director of human resources planning and strategy/staffing at Sprint.

Because Sprint's welfare-to-work program participants are just now finishing up their first full year of employment, "I anticipate we'll see people beginning to take advantage of these funds and see them moving on to other

jobs within Sprint," Glassier says.

Key to the success of the program is that Sprint, in addition to providing the skills training needed to do the work, has put its human resources personnel, call-center supervisors and managers through training so they understand the special needs of those workers. In addition, the workers are provided with peer mentors whom they can approach with questions they might not want to ask of a supervisor.

Indeed, the most successful welfare-to-work programs put such solid support structures in place, MacArthur says.

"You have to understand: Many of these people have never held a job before," Glassier says.

Steven Wing, director of government hiring programs at CVS Corp., based in Woonsocket, R.I., says benefits abound for private firms that hire former welfare recipients. CVS has hired 1,578 such individuals in the past two years and still employs 1,014 of them. That's a 64% retention rate.

"In our line of business, those are great statistics," he says.

As at other firms, workers are hired into entry-level positions in CVS' retail pharmacies. But many have moved up into administrative positions; inevitably, they will find their way into IT and other advanced functions. Wing remembers one of the first employees hired, who graduated to working in customer service in the corporate office. She had two kids who had refused to go food shopping with her when she was on welfare because they were too embarrassed to be seen paying with food stamps.

"The first week this woman got a paycheck, the kids were waiting in the car when she got home — they wanted to go to the store with her when she paid actual cash," Wing says. "When you hear stories like this, you know it's much bigger than just hiring — or retaining — an employee." ■

*LePlante is a freelance writer in Woodside, Calif.*

**FATHER JIM HOLUB (right) founded Homeboys Graphics to help people such as former gang member Tony Williams (left) land jobs in corporate IT**

DRIVING THE DEAL/JOE AUER

## Not in the Documents? It's Not in the Deal

**I**N NOVEMBER, a food company was fuming at its enterprise resource planning vendor. The time to go live was approaching, and the list of problems was growing. One shortcoming was the software's inability to close the company's books on the 15th rather than the last day of the month. The vendor was offering only manual work-arounds. The vendor's position was, "It's not our problem, and it'll cost you a lot more money."

What went wrong? The request for proposal (RFP) and the contract.

A vendor's response to an RFP is based on the prospective customer's statements about what resources and results will satisfy its requirements. The RFP should not only help the buyer select a vendor, but also help both the customer and vendor precisely clarify what the product or service must do. That wasn't the case here.

The customer had listed some of the deficiencies as requirements in the RFP. Some requirements were buried in the RFP's background information section, while others weren't mentioned at all. The vendor's proposal followed suit: Some solutions were promised, some ignored. And the contract, of course, was silent on these issues. The contract didn't even mention the version of the enterprise resource planning system to be delivered and installed.

This type of problem is far

too common. Surely the most important concept in getting what you're paying for is "If it's not part of the documents, it's not in the deal"—especially as every vendor contract includes a legalese version of this statement.

How was this particular conflict resolved? Unfortunately, the customer had to resort to threats. Luckily, this vendor was interested in future business and in preserving its reputation, and it also thought some of the requirements were actually good ideas. The cus-

tomers were able to create manual work-arounds for some deficiencies, and the vendor added many of the deficiencies to its enhancement list for the next release of the product. The customer also negotiated for a maintenance credit and several days of free consulting.

So how can we avoid such confrontations? When drafting the RFP, be sure to do the following:

- Develop a requirements section that completely and clearly covers the desired functionality and specifica-

tions. Don't tailor those requirements to a particular product or you may skew the selection toward one vendor.

- Include those requirements in the vendor evaluation criteria. It helps if they are put into a spreadsheet where the vendor can answer "yes," "no," or "yes, with modifications."

The conventional wisdom has been to attach both the RFP and the vendor's response to the eventual contract. That just doesn't cut it any more. Years of disputes and court cases have undeniably proved that RFP information can be as dangerous as it is helpful. The customer's requirements are often unclear and incomplete. Vendor proposals are mostly worded with qualified sales puffery.

So they're hard to enforce. Attaching the RFP and vendor proposal falls short of clearly describing the parties' contractual rights and obligations.

The best deals sell it out five ways:

- In writing, just writing down the customer's expectations and the vendor's total representations clearly and completely immediately increases

accountability in the relationship.

- In the contract. Putting those specific statements in the contract increases enforceability even further and beats the vendor provision mentioned earlier which excludes everything that's not in the contract.

- Warranties. We need to turn the vendor representations from all sources into clear, specific and enforceable warranties—including metrics determining how vendor compliance will be objectively and mathematically measured.

- Remedies. But we can't stop there. Warranties aren't any stronger than the remedies associated with them.

That's why we have speeding tickets.

- Contract management. Assertively monitoring compliance, documenting it and exercising remedies when vendors aren't compliant help enforce the agreement.

Remember, defining the deal, documenting the deal and managing the deal are all key components of driving a better deal. ■



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## WORKSTYLES

### Continuing Education

#### Short-term pain, long-term gain

For Ben Wilms, a new MBA student and Los Angeles-based consultant at PricewaterhouseCoopers (PWC), a typical weekday begins before 7 a.m. and ends just after 11 p.m.

First, there are nine hours spent working on a client's data warehouse project. After that comes the commute home, a quick bite to eat and a few minutes of laundry around with his two kids, both under 5. Then it's five more hours of reading or working with his lab-

oratory MBA-seeking consultants on internet-based projects.

"I just don't have a lot of free time anymore," said Wilms, one of 34 PWC consultants who just completed their first semester in a novel, two-year MBA program.

But Wilms is convinced that two years from now, the grinding pace will pay off—probably in the role of project manager or other leadership position. It could land any of the participants a CIO job or another job in the executive suite.

Developed in conjunction with the University of Georgia, the PWC program consists of customized classroom and computer-based

instruction. Its goal is to increase IT consultants' business acumen: Less than 30% of PWC's new hires have business degrees.

In the first year, students spend the first two weeks then another week every three months on-campus in Georgia. In between, they use a Lotus Notes database to collaborate on group projects and communicate with professors via E-mail.

They also maintain their regular work schedules. For Lawrence Franklin, another student, participating in the program means working 40 hours per day on a client's spreadsheet implementation, then heading home for three to four hours of schoolwork. But Franklin, like the others, is convinced the effort will be worthwhile.

"This program expands my marketability for different projects," Franklin said. "I will open all sorts of opportunities for me because I'll

have a broader knowledge" of statistics, economics, finance and legal issues, she said.

A CIO post is also a possibility, says Linda Pottner, a human resources expert on IT and CEO at PricewaterhouseCoopers, N.J.

"The focus is IT, not business so that a CIO is not valuable to the business [unless that person] can truly understand things like supply chain management and business-process management," she said.

#### JUST THE FACTS

### Double Duty

Details of PricewaterhouseCoopers' MBA program

- Two-year program, developed with University of Georgia

- Students work full-time at their consulting jobs

- Students also sign a three-year stay-on contract

That's why leading-edge firms are starting to regard MBA holders with technical experience as potential CIOs and to "use CIO posts as a training ground for [chief operating officers] and CEOs," she said.

For the next three years, though, Franklin, like all the MBA students, has committed to remain at PWC. In exchange, the consulting company is picking up students' full tuition and travel costs, which total about \$80,000 during the two years.

Ben Bartholomew, a principal consultant at the company, has no doubts that PricewaterhouseCoopers will successfully retain all 34 of new hires after graduation in 2000. "I wouldn't be surprised if we lose a few to other companies," Bartholomew said. "The reality is that the market is so charged up right now that it wouldn't be difficult [for another company] to buy out that three-year stay-on contract."

—John King



# TECHNOLOGY

## IT LEADERS' CHOICES

We asked you to identify the IT products that return the greatest value to your organizations and tell us why. Your answers led us to 20 prize-winners. » 70

## TUNING IN TO WBEM

A desktop management initiative with heavy vendor backing might finally help IT collect and process management information in a consistent, standardized way. » 66

## LINUX SELF-SUPPORT

Rather than wait for big vendors to support Linux, corporate users turn for help to fellow users of the open-source operating system. » 61

## FRANKLY SPEAKING

Never mind the privacy advocates or Intel's about-face on Pentium III security measures, IT should think of the processor-specific IDs as convenient serial numbers. Frank Hayes writes. » 60

## USERS YAWN AT UPGRADES

As several laptop vendors launch machines using new, super-fast Pentium chips, users shrug and wish for more stable platforms instead. » 62

## OS/390 PRICING

Under a new IBM pricing scheme, users pay hardware and software fees for only the portion of the system that's actually being used. Need more juice? Just turn a key and pay as you go. » 50

## TWO-WAY SECURITY

Focused on information coming in, many companies forget to secure the data they send out — to employees, business partners or consultants. This neglected branch of security is receiving more attention as vendors release products which limit access to outbound information. » 60

## PORTAL POTHOLES

Web sites that link suppliers with buyers in vertical industries comprise a growing — and lucrative — market. But it ain't easy or cheap. One company estimates that it will have to spend about \$30 million to set up a business-to-business portal. » 64

## IBM ASCENDS

Flashback: In 1953, the birth of the 701 launched Big Blue's dominance of the IT world, despite the machine's unheard-of million-dollar price tag. » 75

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## CLIENT BACKUP: GROWING FAST

FUELED BY IMPROVED TOOLS, the popularity of disaster-prone laptops and increased awareness of the cost of downtime, IT's use of client-backup software is growing fast. Only 22% of large corporate IT shops do any client backup today, but the market may double in the next year. G E Investments is in the vanguard: The firm soon will back up 400 PCs daily to a central server.

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# MAINFRAME POWER — WHEN YOU NEED IT

IBM S/390 G5 users pay only for capacity they activate

BY JAHUHAN ULAYAN

**I**BM MAINFRAME users unsure about how much hardware they're going to need for fast-growing applications such as enterprise resource planning (ERP) now can sock away extra capacity at no additional cost.

The company last week announced a program called Plan-Ahead, under which users can buy or lease fully loaded S/390 Generation 5 (G5) mainframes and incrementally turn on capacity as needs arise.

For instance, users who estimate they will need a four-processor system to run a particular application can buy or lease a fully configured, 10-

processor G5 mainframe from IBM. Users pay only hardware and software fees for the portion that's being used.

When the need for more capacity arises, an electronic key supplied by IBM allows users to switch on additional processors or storage — and pay for it at that time.

The software technology — which has been available for a few months from IBM rival Amadahi Corp. —

saves time and increases flexibility when upgrading mainframe hardware, said John Revis, director of data center computing at the University of

Florida in Gainesville. For instance, the fact that systems don't have to be shut down or

The university plans to add significant capacity to its IBM mainframes sometime around the third quarter of this year.

"It's a capability that fits very well with market needs. ... Instead of waiting for hard-

ware applications such as ERP on their mainframes, the capability also could prove very useful in the months leading into next year, analysts said. With many companies expected to freeze major system changes starting around this year's third quarter, the new technology allows customers to buy any additional capacity they may need right away.

The offering also means that "users don't have to pay onerous software license fees for capacity they are not immediately using," said Carl Greiner, an analyst at Meta Group Inc. in Stamford, Conn.

Most mainframe software licenses require that users pay for the software based on the overall capacity of the system. Concurrent conditioning — or the ability to "hot-plug" storage and other I/O devices as the need

arises, will become available on the G2 late next month.

Capacity Upgrade on Demand, as the processor upgrade is known, is due next quarter. ■

## Making It Easier

IBM's moves to make the S/390 upgrade path easier:

Requirement	Function	Why It's Important
Capacity upgrade on demand	Lets users buy extra processors and turn them on when needed	Makes capacity upgrade easier. Extra capacity available when needed
Concurrent Conditioning	Allows "hot-plugging" of additional I/O capacity as needed	Additional storage available when needed. No need to take system down to add storage

opened to accommodate upgrades means that capacity increases can be accomplished more quickly than before, he said.

ware to ship, customers can get capacity as they need it," Revis said.

Though IBM is targeting customers planning to host

## Backup Software a Worthwhile Investment

After a slow start, more companies automatically back up users' hard drives

BY NANCY DILLON

Although most companies still leave end users to their own devices when it comes to local hard-drive backups, the number of organizations using client-backup software is growing fast.

One organization in the client backup vanguard is G E Investments Corp. in Stamford, Conn. The financial firm has software on 250 PCs automating daily backups to a central server. By June, the installation is expected to increase to 400 PCs, including almost 100 laptop computers.

"We'd had quite a few hard-drive crashes, and we had one laptop stolen," said John Rossi, manager of information technology at G E Investments. "When your system crashes and you can't use your trade applications or look at a portfolio, unless we can restore an image of the way you had everything in a few hours, you're going to lose a day's [productivity]. ... That could mean hundreds of thousands of dollars."

Strategic Research Corp. in Santa Barbara, Calif., reports that only 22.5% of large corpo-

rate sites are doing some type of client backup. And at those sites, only 26% of the PCs, on average, back up to a server.

"It's possible that the size of the online client-backup market will double by next year," said Philip Mendoza, an analyst at International Data Corp. in Framingham, Mass. Fueling the expansion are improved tools, increased usage of disaster-prone laptops, the growth of unprotected data on high-capacity PC hard drives and awareness of hidden system costs such as downtime.

The software in place at G E Investments is Connected Network Backup (CNB) from Connected Corp. in Framingham, Mass. CNB 4.0, which hit the market two weeks ago, offers hands-free backup over local and dial-up connections, server-based redundant file elimination and the ability to restore a damaged client to its most recent working state. Rossi said he likes the new Web-based management console.

Now, "if a user disables a daily backup for any reason, it's

written to the log. If they do this three days in a row, it's not on my head anymore. But we rarely let this go over 24 hours," he said.

Similar client-backup applications include TSIInfo-PRO from TeleBackup Systems Inc. in Dallas, Texas; NovaNet-WEB from NovaStor Corp. in Simi Valley, Calif.; and Replica NDM from Stac Inc. in San Diego. Replicas NDM 1.6 is due today, promising better security and the ability to restore only what's missing on a downed client.

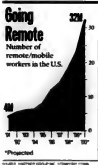
"I don't think we have a single PC that's worth as much as the data on it," said William Sedgewick, a technology consultant at Miami-based Florida Power and Light Group Inc. Sedgewick has licensed more than 650 copies of Replica NDM for PCs and laptops




G E INVESTMENTS' John Rossi: Without client backup, users can easily lose a day's productivity in a system crash

across his business unit.

Sedgewick said he waited for Replica NDM 1.6 because that version can send upgrades from the server to the client without the need for an administrator to visit each workstation. Pricing varies by volume, but a Stac Replica NDM site license for 1,000 users costs \$100 per seat, including the server. The CNB 4.0 server costs \$6,000, with client pricing starting at \$140 per PC. ■





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## Companies Move to Protect Outgoing Data

### New tools limit access and copy functions

BY SHARON SAUDIN

A company that sells medical information on CD-ROMs lost tens of thousands of dollars worth of sales when someone copied the CDs and pirated the information over the Internet.

Rob Sinnott, president of Mokena, Ill.-based Chiropractic Books Corp., said he lost a year's worth of sales to the country's largest chiropractic school, Life College in Marietta, Ga., when a medical student copied the CD-ROMs and sold the information on his own. "Stupid me," Sinnott said. "I didn't secure the CDs, so he could lift the information right off. I'm paying for that dearly."

Sinnott is one of a growing number of corporate users fo-

cusing on security beyond their own walls. Most corporate information technology administrators have been aware of the need to fend off hackers from breaking in to their systems but haven't given much thought to the information they send out, whether it's to their employees, business partners or consultants.

Industry watchers say that because many firms have firewalls and other features to protect against attacks from outside, they're now focusing on the employee who might send a copy of a critical E-mail to a friend or competitor and on stopping information from making its way from business partners to the black market.

"Oh, it happens," said Steve Hunt, a director at Giga Information Group Inc.'s Chicago office. "Companies are increasingly developing policies and informing employees about security breaches." Hunt and several users said there are few security products dedicated to the problem, but it's getting increasing attention.

Digital Delivery Inc. in Bed-

ford, Mass., recently started shipping Confidential Courier and GeoSecure.

"We're trying to come up with ways to control the means, time periods and locations that information can be accessed," said Mark Hastings, president of Digital Delivery.

Confidential Courier lets users disable functions like cut, paste, print and save-as in E-mails or files that are shipped over a network, on disks or on CD-ROMs. It also enables a user to specify that

the information can be read only with a unique key that can't be given to another user.

GeoSecure goes a step further and tries to specify a limited geographical area, such as a building, where the information can be accessed. Using a dedicated Global Positioning System receiver or a token generated on the target machine, the software won't let a file be opened anywhere other than the specified location.

"That will keep someone from taking a laptop out of the building and letting someone else view a file," Hunt said.

"There are still ways to circumvent this, but this is a move in the right direction."

And that's important to Randall Yunk, an engineering consultant at chewing-gum manufacturer Warner Lambert Co. in Rockford, Ill. "We consider [what we send out] to be proprietary information, and we need to secure it," Yunk said. ▀

### Tight as a Drum

Digital Delivery is shipping products that help secure information companies send out. Here's what they do:

- Disable cut, paste, print and save-as functions
- Enable information to be read only by a specific application
- Specify a geographic location where it can be accessed
- Send it with a unique key that can't be shared or duplicated.





**BRIEFS****Smart Options**

Consumer electronics reward smart cards:

- 76%** Interested in smart cards
- 59%** Would use for bank/ATM access
- 53%** Would use as credit cards
- 48%** Would use to make small purchases
- 35%** Would want only one card
- 26%** Would pay a \$20 to \$30 annual fee
- 25%** Would pay a \$30 to \$50 annual fee

Source: Understanding of EMV transactions and attitudes with 24 households

**HP Backup**

Heald-Peterson Co. has won the right to announce a 140-byte tape backup system aimed at stand-alone power users as well as mobile users. The new HP Colorado 1400MB (internal/external) tape drive runs approximately 40% faster than its predecessors, the company said.

The drive is scheduled to be available in April at a cost of \$305 for the internal version and \$415 for the external version. Both come with a tape cartridge. [www.hp.com](http://www.hp.com)

**Internet Appliance**

Cobalt Networks Inc.'s new Cobalt Quix 2 is an appliance for Internet connectivity, E-mail, Web publishing and networked file services. The Internet server appliance runs on the Linux operating system, according to the Mountain View, Calif.-based company.

Pricing for Quix 2 starts at \$699. [www.cobaltnet.com](http://www.cobaltnet.com)

**Glare-Free**

VividSense Corp. is now shipping the PT705, a 10-in. color flat-panel display. The product features a screen treatment that minimizes the glare of reflected light, according to the Walnut, Calif., company. The PT705 costs \$1,675. [www.vividsonic.com](http://www.vividsonic.com)

# SPEED MAY NOT SELL NOTEBOOKS

Announcement of 333- and 366-MHz processors not critical for some

BY MATT HAMLEN

**W**HEN MAKING laptop vendors announced new models featuring Intel Corp.'s speedy Pentium II 333-MHz and 366-MHz processors last week, some users were unimpressed.

"Nobody here runs out to get the newest laptop," said Raymond Gloot, a project manager at ABN AMRO Information Technology Services Co. in Chicago, which supports LaSalle National Bank and has 12,000 users in North America.

David J. McCue, CIO for the health care group at Computer Sciences Corp. in New York, said a 333-MHz processor "would be nice to have, but not critical." McCue oversees about 550 notebook users.



TOSHIBA's Tecra 8000, at 366 MHz, is slated as a true desktop replacement.

All told, 18 vendors last week announced use of the faster chips. Most laptops running the chips will be priced from \$2,500 to \$3,000, analysts said.

But at the high end, Compaq Computer Corp. in Houston announced the \$4,899 Armada 7500, which includes a 366-MHz Pentium II processor, a 14-in. screen and a 14G-byte hard drive. Moreover, Toshiba

America Information Systems Inc. in Irvine, Calif., announced its \$4,499 Tecra 8000. Slotted as a true desktop replacement, the Tecra 8000 features an 8G-byte hard disk and the same-speed processor and same-size screen as the Armada 7500.

Analysts said most information technology departments would prefer greater longevity over increases in speed and predicted the new chips would have a minimal impact.

"Corporations aren't asking for faster processors; they are asking for platforms to be around longer," said Katrina Dahlquist, an analyst at Inter-national Data Corp. in Framingham, Mass.

"It's just not that compelling," agreed Ken Dulany, an analyst at Gartner Group Inc. in Stamford, Conn. "For most users, the jump to a 366 is not a significant enough uptick from a Pentium II 266."

Moreover, while some notebook makers suggest their newest models will provide 18 months of life, corporate IT

managers hope to use the machines an average of three years, Dahlquist said.

Intel officials said the 366-MHz processor provides up to two times faster performance than similar processors available one year ago, while consuming less power than previous versions. Also, faster chip speeds will help allow data encryption for laptop security, Intel said.

**Good for the Hungry User**

One IT shop that welcomes the speedier chips is Viewpoint Datafiles Inc. in Orem, Utah. The company produces three-dimensional computer models and needs notebooks with faster processors for its salespeople to show off its work, said John Thomas, vice president of operations.

"We'll be showing movies and big, rich files of 40M bytes in size, so different aspects of a laptop will aid that," Thomas said. He's interested in the Toshiba machines and said the new 333s and 366s soon would be in demand by heavy laptop users at Viewpoint.

But the response of ABN AMRO's Gloot was more typical: "For the most part, our laptop users are reading E-mail or typing," he said. "More speed doesn't help that."

## Compaq Extends Clustering

To help servers run key applications

BY SPENCER JACOBS

Compaq Computer Corp. last week announced two-node clustering capabilities on its four-way Xeon-based servers, a move that may help those systems grow more mission-critical applications.

The Houston-based computer maker's new ProLiant Cluster HA/500 bundles clustering hardware and software with its existing four-way servers, the 5900, 6000, 6500 and 7000. The servers would run the clustering edition of Microsoft Corp.'s Windows Enterprise NT Edition operating system.

The systems would be offered with Fibre Channel storage systems and Compaq's Insight Manager server management software, as well as its SmartStart quick start-up tool

kit. Available now, the clustering systems range in price from \$10 to \$4,400 for customers adding clustering to existing servers to \$50,000 and up for those buying the clustering technology with new servers.

Dual-node fail-over allows one server to take over the work of another in case of server failure, which reduces application downtime.

Though Compaq isn't the first vendor to offer such clustering, the capability is one the vendor must offer to allow its Intel-based servers to run more critical applications, said John Dunkle, president of Workgroup Strategic Services Inc. in Portsmouth, N.H.

"What Compaq is offering is a logical progression of their technology offerings," Dunkle said. ■

## STYLISTIC 2300

Fujitsu Personal Systems Inc. is shipping the Stylistic 2300, a Windows-based pen tablet computer. According to the Santa Clara, Calif., company, the system incorporates a 233-MHz Pentium processor from Intel Corp., a 4.1G-byte hard drive, a built-in 50K Hz/sec. mouse and a portable transreflective color display designed for outdoor use. The Stylistic 2300 costs \$4,495. [www.fpi.fujitsu.com](http://www.fpi.fujitsu.com)



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## BRIEFS

## Ethernet Upgrade

IBM recently expanded its Ethernet switch line with the 8271 MultiLayer Ethernet Switch, offered at a base price of \$9,995. The company also announced the nine-slot 8274 Netway LAN RouterSwitch, which will cost \$299 per port. [www.ibm.com](http://www.ibm.com)

## Palm-size Hub

D-Link Systems Inc. has announced the DSH-4, a palm-size hub that can connect Ethernet or Fast Ethernet nodes into any available port. According to the Irvine, Calif., company, the Ethernet hub was designed for small offices. The hub costs \$99. [www.dlink.com](http://www.dlink.com)

## Network Connection

Econ Technology Corp. is shipping the DWA LAN ISDN Modem, networking hardware for connecting several PCs to the Internet and corporate networks, according to the Montreal company. The modem said the modem has a built-in, four-port 10/100-T Ethernet hub, which network managers can expand to up to 50 users. The modem costs \$495. [www.econ.com](http://www.econ.com)

## Auto Negotiation

Lotusnet Inc. last week released the Millennium Switch, a 10/100 auto-negotiation switch that supplies health statistics and port-by-port configuration. According to the Nashua, N.H., company, the switch is available in eight- and 32-port models that cost \$640 and \$999, respectively. [www.lotusnet.com](http://www.lotusnet.com)



## Supplier/Buyer Portals Took a Lot of Work

Host company had to build middleware, workflow systems itself

BY CAROL BLIVA

The financial opportunity for Web sites that link suppliers with buyers in vertical industries is expected to grow significantly within five years.

But companies setting up such business-to-business portals will find that it isn't easy or cheap — especially if they were used to let buying companies comparison shop, set employee speeding limits and approval cycles, and enforce negotiated pricing.

Major challenges include creating a common terminology for products from hundreds of suppliers, building complex workflow systems to handle the movement of orders among multiple companies and writing the middleware that allows buyers, sellers and the portal host company to communicate.

Chemdex Corp., for example, in October launched a portal to help link buyers to suppliers of biochemical reagents and antibodies.

So far, the company has spent \$15 million setting up its portal, and it expects to spend another \$85 million during the next year and a half, said Pierre Samec, Chemdex's CIO.

## Semantics Important

Even something as simple sounding as posting product information can be a huge undertaking.

Many of Chemdex's 130 suppliers refer to the same product by a different name, which would make it impossible for buyers to do price comparisons when they conduct electronic searches.

"Semantics becomes important because that's what gives you automatic processing," said Torrey Byles, president of Granada Research in Half Moon Bay, Calif.

To ensure data consistency, Chemdex has 10 staffers with advanced degrees in chemistry, biochemistry and biology who normalize and load information



CHEMDEX'S Pierre Samec: Setting up portal relationships was difficult

from 300,000 products into its Oracle Corp. databases.

Creating Chemdex's multilayer architecture was no small task, given what the corporate buyers want to do.

Chemdex bought a software package from Connect Inc. to set up forms and templates and

An Enterprise Server from Netscape Communications Corp. to serve and encrypt data.

But to build the middleware

and workflow system, the company brought in 10 programmers and administrators who have worked nearly around the clock since January 1998.

They wrote systems ranging from tax algorithms to authorization and authentication mechanisms and business rules.

The lack of technical sophistication among many suppliers forces Chemdex to set up different methods for exchanging information including E-mail, fax and electronic data interchange.

"I think the hardest [part] is [contending with] everything that has to do with enterprise

## NETWORKED APPS GET TOOL ASSIST

Software suite from Compuware monitors availability, performance

BY BOB WALLACE

COMPUWARE CORP. last week announced network management tools for Lotus, PeopleSoft and Microsoft applications running across networks.

Analysts said the suite signals an increased focus on applications by Compuware, which has traditionally concentrated on database tools. Because the suite is more comprehensive than competitors' products, analysts added, information technology shops might benefit from one-stop shopping.

The Campbell, Calif., vendor's existing EcoSystems applications and network management product suite (EcoTools, EcoScope and EcoSnap) lets IT plan service-level agreements for distributed applications, then monitor and report performance results.

"Compuware's becoming more applications-focused," said Ray Paquet, research director at Gartner Group Inc., a

Stamford, Conn., consultancy. "The two thrusts of major significance here are their work on PeopleSoft and NT [application] management."

PeopleSoft Inc. last week certified the Compuware tools

PRODUCT	STARTING PRICE
EcoSystems for PeopleSoft	\$23,000
EcoSystems for Lotus	\$23,000
EcoTools 6 for Unix	\$16,000
EcoTools 6 for Windows NT	\$695*
EcoSnap 2	\$34,000

SOURCE: COMPUWARE CORP. \*PRICES INCLUDE 90 DAYS OF SUPPORT

for managing PeopleSoft versions 6 and 7. Lotus Development Corp. also certified the tools for use with Lotus Notes and Domino Server applications.

Separately, Compuware announced EcoTools 6, a version for Windows NT and Unix. The company said EcoTools 6 also provides enhanced sup-

## JUST THE FACTS

## Chemdex Corp.

**Business:** Sells biological and chemical reagents from 130 suppliers to biotechnology and pharmaceutical companies, academic institutions and government agencies via its business-to-business Web portal site. [www.chemdex.com](http://www.chemdex.com)

**Founded:** September 1997

**Location:** Palo Alto, Calif.

**Employees:** 60

**Site debut:** October 1998

**Products offered:** 300,000

**Current sales:** About \$50,000 per day

purchasing — setting up all the contracts, all the relationships between buyers and suppliers, the workflow and the order entry. That's sort of the least understood and known and the one where there was the least amount of third-party support to help us," Samec said. ■

port for Microsoft Corp.'s Exchange, Microsoft's Internet Information Server and Novell Inc.'s NetWare for Windows NT.

## Other Players

Competitors such as Compuware Associates International Inc., IBM's Tivoli Systems Inc., Hewlett-Packard Co. and Platinum Technology Inc. each do

some of the things Compuware does, but none has all three tools, analysts said.

Biogen Inc.'s Barry Waldman said monitoring is the biggest benefit of Eco-

Tools. "We can use people to work on business projects instead of constantly monitoring everything," the senior database administrator at the Cambridge, Mass., biotechnology company said.

Waldman said he will look into using EcoTools to get a handle on Biogen's Lotus Notes application. ■



# CES Outlook

BY KEVIN BURDISH

**A**S USUAL, this year's Consumer Electronics Show in Las Vegas was loaded with products that won't help information technology professionals with their jobs one bit. Ahhhh, what a welcome change of pace to ease into the new year.

But since telecommuting has many of us powering our homes with the necessities in our office, here's a glimpse of some of the cutting-edge products that were hidden among the TVs and stereos at CES. They should make working from home a little easier. The emerging technologies highlighted here include home networking and personalized information.

## HOME NETWORKING

### PassPort Plug-In Network

Inteligis Inc., [www.inteligis.com](http://www.inteligis.com)  
Inteligis' PassPort Plug-In Network uses a home's existing AC electrical wiring - no new wires are required. Essentially, plug in a couple of PCs to electrical outlets and they are ready to start passing data and sharing peripherals. Each PC or printer plugs in to its own small, external adapter through a parallel cable, which is then plugged in to an electrical outlet.

Data transmission rates run at 350K b/sec., which is a nice jump over 56K b/sec. modems but slower than the 1M b/sec. speeds of some phone-line networking products. PassPort's latest version, which is expected to ship this month, supports Windows NT and retails for \$200.

### Cendis

Global Converging  
Technologies  
[www.globalcom.com](http://www.globalcom.com)

Global Converging is using wireless technology to network homes. Its Cendis is an intelligent cordless phone that can access PC and Web information as well as manage multiple phone lines. PC data is sent to the phone's base unit through a serial connection and then to the cordless phone. With an integrated 56K b/sec. modem in the base, data also can be sent to a wireless LCD touch-screen panel.

For home offices, Cendis will monitor all incoming phone lines and route traffic to the open line.

Cendis is expected to retail for less than \$500.

"All of these products, whether they are wireless or use existing power or phone lines, are so inexpensive. So if they provide the capabilities you're looking for, I say go for it," advises Bill Akendi, principal at MarketMaps, a technology research firm in New Canaan, Conn.

## PERSONALIZED INFORMATION

### Command Audio

Command Audio Corp.  
[www.commandaudio.com](http://www.commandaudio.com)  
Command Audio is an audio-on-demand service for users who not only want to choose what they listen to but also when.

The service continuously transmits just the audio programs each individual user wants into the memory of a handheld receiver. Information sources such as local traffic,

weather, news, business and sports reports are constantly updated and transmitted to the receivers that automatically store them.

Users can then listen to any program whenever they choose. They can even select programs like *BusinessWeek*, *Fortune* and *Time* magazines.

The service will debut in Denver and Phoenix by midyear, and a national rollout is expected to begin early next year.

The receiver is priced at \$399, and the service will cost \$15 per month.

## PHONE TECHNOLOGIES

### EXL 8962

Uniden America Corp.  
[www.uniden.com](http://www.uniden.com)

Uniden has developed a cordless phone to help lower out-of-control home-office phone bills.

The EXL 8962 phone with Long Distance Manager automatically selects the lowest long-distance rate available for each call placed. As calls are dialed, the 900-MHz phone automatically searches for the lowest rate from a database of more than 60 long-distance carriers. Users don't need to subscribe to carrier rate plans or even pay monthly service fees to Uniden.

Each month, the user receives one bill detailing the carrier and cost of each call.

Due in July, the phone is expected to retail for \$79.95.

### Aplo/Phone 2.0

Aplo Inc.

[www.aplo.com](http://www.aplo.com)

Free - that's the Internet's long-distance rate. Internet phones are the cheapest way to place long-distance calls, but both parties need compatible phones - and that has always been the problem.

Aplo/Phone 2.0 takes a step toward opening their reach. By making it H.323-compliant, Aplo/Phone can now communicate with PCs using Internet telephony and conferencing software like Microsoft Corp.'s NetMeeting.

Aplo/Phone is available now for \$799. »



"Home networking products will be the biggest and the most real products to hit the home market in 1999," says Warren Childs, an analyst at International Data Corp. in Framingham, Mass. "They're inexpensive, they actually work and you don't have to appoint a network administrator over the dinner table."

# WBEM Just Might Make Systems Management Real. Finally!

**Key vendors are supporting the standard, but users should pressure them to pay more than lip service**  
**By Elisabeth Horwitt**

**B**ILL KANNBERG, a technical manager for Hillsborough County, Fla., doesn't know a lot about WBEM. But he and thousands like him know exactly what they want from their management systems: the ability to manage proactively and spot problems before they become serious.

The Desktop Management Task Force's Web-Based Enterprise Management initiative, known as WBEM (and usually pronounced WEB-um), could help users like Kannberg by enabling them to collect and process management information in a consistent, standardized way, independent of what type or brand of networked system the data comes from.

With industry support for WBEM standards just beginning to take off, now is a crucial time for information technology managers to push their vendors to support it fully—even if the WBEM dream won't come true for at least another year.

Today's management tools, such as the Desktop Manage-

ment Interface (DMI) and the Simple Network Management Protocol (SNMP), do a decent job of collecting data about individual desktops or network components. But IT managers still must fit together the vendor-specific data so that they can diagnose problems, distribute software and configure and fine-tune systems for maximum performance.

"I want something that takes a quick snapshot of the network and notifies me automatically" of incipient trouble spots—such as an overloaded CPU or unauthorized disk-drive installation—before they become serious problems, Kannberg says. "Right now, with the information vendor-specific, that's hard to set up."

Enter the WBEM initiative, launched in July 1996 by five heavy hitters: BMC Software Inc., Cisco Systems Inc., Compaq Computer Corp., Intel Corp. and Microsoft Corp. It was officially turned over to the Desktop Management Task Force (DMTF) two years later.

At the heart of WBEM is the Common Information Model (CIM), a standard set of

schemas for describing network systems management data, from static information such as the hardware and software installed on a desktop to dynamic data such as traffic levels on a router port. Today, each

brand of managed device defines and structures that information in a different way, making it difficult for management tools to consolidate, correlate and share the data.

By contrast, CIM schema promise consistent descriptions not only of objects such as peripherals and applications, but of the relationships among those objects.

## **XML's Role**

The other crucial piece of WBEM is the Web-based Extensible Markup Language (XML). "XML could be even more important than CIM because it would [define how] network management applications can communicate in a dynamic way," effectively cooperating on management tasks rather than simply sharing data, says Ray Pacquet, a vice president at Garner Group Inc. in Stamford, Conn.

The DMTF also recently proposed adding HTTP as a standard for transmitting management data.

Enterprise management platforms such as Hewlett-Packard Co.'s OpenView, Computer Associates International Inc.'s Unicenter and IBM subsidiary Tivoli Systems Inc.'s Tivoli NetView have introduced object-oriented architectures that integrate—and to some extent, correlate—multivendor information.

To make their systems manageable by such platforms, however, vendors must write to a series of proprietary application programming interfaces, which limits the number of management tools most vendors are willing to support.

But WBEM will enable vendors to create just one set of management data definitions describing their products. Those vendors can then support a single set of interfaces in order to make their management information accessible by any CIM-compliant management tool or application.

That's good news for users. "The more disparate vendors standardize on common conventions, the easier for companies like us to manage our business, service levels, troubleshooting and desktops," says Glen Tindal, internal enterprise data networking group director at MCI WorldCom Inc. "Until that happens, you gather a few [information] nuts from this tree, a few from another and then put a meal together."

## **Other Efforts**

Of course, WBEM isn't the first industry effort to standardize network systems management down to the data level. "X/Open, the Common Operating System Environment [Group], Open Software Foundation and International Standards Organization all had a chance at succeeding too," Pacquet says.

So why is WBEM different? One reason is the clout behind it. Major vendors like Cisco, Microsoft and Intel—a trio that Pacquet says "can pretty much dictate to the rest of the industry"—not only launched the initiative, but have been among the first to introduce WBEM-compliant products.

Microsoft, for example, has built a CIM "object manager" that will take management information from the various software and hardware components on a single Windows NT desktop and make it available to management applications in CIM-compliant form. Compaq expects to finish an "object provider" that can send its hardware data to the CIM Object Manager by year's end. Intel, only a half-year after the DMTF officially took over,

## **TUNING IN WBEM**

❖ **What it is:** The Web-Based Enterprise Management initiative. ❖ **Where it came from:** Launched in 1996 by BMC Software, Cisco, Compaq, Intel and Microsoft. In 1998, it was turned over to the Desktop Management Task Force. ❖ **Goal:** To let vendors create just one set of management data definitions describing their products. ❖ **Producers that failed:** X/Open, Common Operating System Environment and ISO. ❖ **Headlines:** Complexity, breadth of task. Example: Defining Common Information Model schema—a prerequisite—will take years.

leading desktop, network and management platform vendors all have committed to bringing out CIM-compliant products this year (see Support Summary at right).

And Cisco archrivals 3Com Corp. and Nortel Networks/ Bay Networks Inc., as well as Compaq for Dell Computer Corp., already have signed on to support WBEM. Also committed to shipping CIM-compliant products this year are the leading management platform vendors: BMC, Hewlett-Packard Co., CA and Tivoli.

Another hopeful sign is that WBEM's architects are making it easier than past standards to implement. Where, for example, the Open Software Foundation's Distributed Management Environment required ripping out existing managed infrastructure, WBEM makes use of existing Web standards wherever possible. Vendors and users also can go on using SNMP or DMI agents to collect information about devices or systems simply by writing a "provider" to convert their data to CIM definitions.

WBEM is "the best chance for getting meaningful network and systems management standards we've had," says Jim Hermans, a vice president at Northeast Consulting Resources in Boston. Leading-edge firms already are thinking up uses for WBEM standards. For example, CIM would let a management system check if a multivendor mix of desktop systems had the right software and hardware to support a new software update, says Karen Gibson, a senior IT staff member at Charles Schwab & Co. "Then you wouldn't have so many software distribution failures," she says.

#### No Done Deal

There are still plenty of obstacles that could slow down or derail WBEM. Perhaps the biggest is the complexity and breadth of work — such as defining CIM schema, which likely will take years.

There's also the question of whether Microsoft's CIM Object Manager will become a de facto WBEM standard for amalgamating management data and providing it to management tools. "Obviously, if you're managing NT or Win-

dows 2000, you'll use [the Microsoft product]," says J. P. Corrivane, CA's senior vice president of research and development for Unicenter. "But you'll need another object management platform if you're managing Unix, NetWare or network buses."

Customers also need CIM object managers that can collect data from agents on multiple systems — not just the one on which they reside, says HP's Jim Haselmaier, an OpenView marketing manager. HP may provide one, he hints.

Then there's the question of the depth of vendors' WBEM support. For example, BMC's Patrol and Microsoft's Systems Management Server both will gather CIM data from managed systems and provide it to other management applications, but Tivoli and CA platforms only import such data. Vendor-specific management platforms like Cisco's Cisworks and 3Com's Transcend, conversely, will provide CIM information to the big management platforms like NetView and OpenView but

Schwab, for example, always discusses CIM with prospective vendors, according to Gibson. "If vendors say they have no plans to comply with CIM, we might be interested in using their product to solve an immediate business problem — but we would think twice about it from a long-term perspective," she says.

WBEM backers advise that IT shops push vendors to be specific about their WBEM support plans. Ask management system vendors, "Are your products going to be based on CIM-compliant databases?" And are they going to implement WBEM technologies to interoperate [with other management tools]? "We're Winstoo Bumpus, DMTF president and Novell Inc.'s corporate architect."

But don't expect to trash your systems to publish management information anytime soon, corporate users warn.

"We're all thrilled that [WBEM] is happening, but we can't afford to wait till everyone is singing Kumbaya together," MCI WorldCom's Tindal says. Nor is it likely that "every vendor you have in your shop will commit to [CIM-based] interoperability within a year," he adds — particularly if, like MCI WorldCom, you keep adding vendors through mergers and acquisitions.

MCI WorldCom's strategy to provide integrated management across systems is to use standards whenever possible. "Go for the low-hanging fruit, where synergies can happen quickly" and the payback is clear, Tindal says.

MCI WorldCom already has done this with SNMP and DMI, and plans to do it with WBEM as well. "I absolutely believe that WBEM has a far better chance of succeeding" than earlier efforts such as DMI, Tindal says. "Vendors across the industry, not just desktop companies, have realized they have a common need for common manageability."

"Right now, WBEM is something to be aware of that could fundamentally change the management game and marketplace," Gartner Group's Packard adds. "It has potential, but products aren't out there yet — they will be in the next year. So if you have problems

## WBEM Support Summary

If WBEM succeeds where other standards have failed, massive vendor support will be a big reason. Here are the major players lining up behind WBEM:

#### Managed Systems

**Compaq:** CIM version of Compaq hardware agent.  
Availability: later this year.

**Intel:** Wndr for Management, Intel's specifications for instrumenting hardware for asset management and diagnostics, provides CIM compliant information.  
Availability: now.

**Microsoft:** Windows Management Instrumentation (enable Windows NT-based systems to publish management information in CIM format) on Windows 95, Windows 2000 and Windows NT4.0 with Service Pack 4.  
Availability: now or upon shipment.

**Network Management Platforms**

**IBM's Tivoli Systems:** Tivoli NetView, Tivoli Enterprise.

**Tivoli Manager:** Tivoli Manager and Tivoli Cross-Sight all can import CIM data.  
Availability: now.

**BMC Software:** Pilot reports and imports CIM data.  
Availability: now.

**Computer Associates International:** Unicenter TNG 2.2 will be able to import data from WBEM/Windows Management Instrumentation products.  
Availability: set for this year.

**Hewlett-Packard:** OpenView Manager 4.0 can import

CIM compliant data from other platforms such as Compaq's Insight Manager.  
Availability: now.

**OpenView Network Node Manager:** imports CIM data from Cisworks/2000 and others.  
Availability: now.

**Cisco Systems:** Cisworks/2000 can export CIM data to other management systems.  
Availability: now.

**3Com:** Transcend will export CIM data.  
Availability: set for this year.

**Intel:** LANDesk 6.2 exports CIM information.  
Availability: now.

**Compaq:** Insight Manager XE will import and export CIM data.  
Availability: set for this year.

**Dell Computer:** OpenManage will export CIM data.  
Availability: set for the first half of this year.

**Microsoft:** Systems Management Server 2.0 will import and export CIM data.  
Availability: set for early this year.

**Nortel:** ManageWise and ZENworks can import CIM data.  
Availability: now.

**Nortel Networks/ Bay Networks:** Optivity will import and export CIM data.  
Availability: set for this year.

to solve today, don't worry about WBEM. Just include WBEM in your future plans, put it in your [request for proposals] both for procuring equipment and management systems. And keep watching." ▀

Hewlett is a freelance writer in Waban, Mass. She can be reached at ehewlett@compuserve.com.

#### MORE THIS ISSUE

To learn more about the Common Information Model, which lies at the heart of WBEM, see *Quick Study* page B6.

**WBEM is the best chance for getting meaningful network and systems management standards we've had.**

JIM HERMAN,  
NORTHEAST CONSULTING

won't collect CIM data from rival management platforms.

"If we don't start seeing some manager-to-manager communications [via CIM], it won't get very far," Packard says. The bottom line for IT managers: Push vendors to support the WBEM standards and make WBEM part of your long-term — if not short-term — network management plans.

## Related Terms

Before trying to decipher CIM, you need to familiarize yourself with these terms:

• **Desktop Management Interface (DMI):** A standard for collecting management information

about desktop systems (see QuickStudy, Nov. 16, or our Web site at [www.computerworld.com/home/features.nsf/all/981116q](http://www.computerworld.com/home/features.nsf/all/981116q)).

• **Desktop Management Task Force (DMTF):** An industry standards body that develops management standards. Some

of these include Desktop Management Interface and CIM.

• **Extensible Markup Language (XML):** A Web standard for formatting data. XML helps structure information in a document to make it "smart" (see QuickStudy, Nov. 23, or

[www.computerworld.com/home/features.nsf/all/981123q](http://www.computerworld.com/home/features.nsf/all/981123q)).

• **Hypertext Transfer Protocol (HTTP):** Allows information to be formatted and sent over the Web.

• **Simple Network Management Protocol (SNMP):** A standard

for collecting management information about networks.

• **Web Based Enterprise Management (WBEM):** A DMTF initiative to standardize how management information is collected, defined and presented. CIM is one of the several standards within WBEM.

# Common Information Model

BY ELIZABETH HORWITT

Imagine that executives from different departments meet to plan next year's budget, and no one is using the same words to describe key concepts such as customers, employees, stock options and bottom line.

Such a situation would make it difficult to run a company. Well, an analogous situation is making it extremely hard for information technology managers to effectively manage enterprise networked systems.

Many vendors are equipping their products with intelligent agents that collect and provide a wealth of information about the products' configurations, functions and internal processes. Those agents gather information about everything from the exact operating system version on a desktop to the ser-

**DEFINITION**  
Common Information Model (CIM) is a standard that defines a consistent model by which network devices, systems and applications can display information about themselves and make the information available to management tools. CIM can describe information such as desktop software and hardware configurations, the CPU box's serial number and traffic levels on a particular router port.

ial number on a hard drive to the latest traffic spikes on a router.

The problem is that vendors differ in the way they define and present that information to network management and systems management tools.

To help solve that problem,

CIM workgroups have been hammering out a set of definitions, which could break down the proprietary management information barriers once and for all.

CIM is part of Web Based Enterprise Management (WBEM; see story, page 66), an initiative

within the Desktop Management Task Force (DMTF) standards group. The initiative recently adopted the Web-based Extensible Markup Language as a standardized means of structuring CIM data for presentation, and Hypertext Transfer Protocol for sending it from system to system.

Together, the three standards will let different management applications collect data from managed systems and devices and share it in a peer-to-peer fashion, says Jim Herman, a vice president at Northeast Consulting Resources in Boston. "But the key thing here is CIM," he says.

In a sense, WBEM treads the

same ground as Simple Network Management Protocol (SNMP) and Desktop Management Interface (DMI), two standards now widely used for managing network devices and desktop systems, respectively. But CIM covers the gamut—network, systems and application management definitions—in a far more comprehensive way.

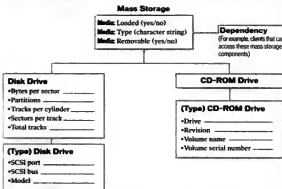
Perhaps CIM's most important differentiator from previous standards is its ability to show the relationships between different elements and components that make up a computer system or a corporate network. Using CIM, "you can see this computer is associated with this application, that is running services that are out on this server," says Winston Bumpus, DMTF president and Novell Inc.'s corporate architect.

By tracing that path and checking the status of each element along the way, a management tool can "answer the question of why I can't send E-mail," he adds. ■

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## Sample CIM Schema

Below is a representation of the way a CIM schema structures information about a managed object, such as mass storage devices that a management application can access. The schema also defines dependencies, which are the relationships among managed objects, such as which clients access a particular mass storage device.



## FAQ: CIM

How soon can my company begin to take advantage of CIM? Though leaders in the desktop, systems management and networking industries are expected to roll out CIM-compliant products by year's end, the question is when the rest of the management and managed system industries will jump

aboard. Corporate users need to have the bulk of their devices using CIM definitions in order to attain its real benefits.

What does CIM provide that SNMP and DMI don't? It provides more standardized descriptions of managed systems and relationships between them and their components.

## MORE ONLINE

For more resources on Common Information Model, see our Web site: [www.computerworld.com/cim](http://www.computerworld.com/cim)

## BRIEFS

## W3C Graphics Standard

The World Wide Web Consortium, which oversees Internet technical specifications, has released the WebColor Profile as a new recommendation.

The standard is a way to exchange dynamic, hyper-linked computer graphics metadata, or GDM. Files on the Web. More information is available at [www.w3.org/Graphics/WebColor](http://www.w3.org/Graphics/WebColor).

## Integrating IBM's E-commerce Apps

Siemens Inc. is integrating IBM's electronic business software — including its WebSphere application server, NetCommerce electronic storefront packages, DB2 universal database and eNet Work FireWall Solution Pack — into its Salvo application development environment for building extranet applications.

## IP Management

Lucent Technologies Inc. said it will integrate its IP address management software with Novell Inc.'s Novell Directory Services in an effort to help it cut the time needed to deploy and run IP infrastructures. The beta version of the software is available now.

## HP to Ship Layer 3 Switches

Hewlett-Packard Co. said it is releasing its first Layer 3 switches, the ProCurve Routing Switch 8304M and 8308M.

The switches have the ability to route information at 55 million and 100 million packets/sec., respectively, according to the vendor. The four-port 8304 costs \$7,495; the eight-slot 8308 costs \$15,995.

They are scheduled to ship in March. [www.hp.com](http://www.hp.com)

## Messaging Server

Ipswitch, Inc. in Lexington, Mass., is shipping Mail Server 5.0 for Windows NT, a messaging server for small to midsize firms that principally use Internet mail clients. Mail Server 5.0 costs \$995 for 250 users and \$1,495 for unlimited users. [www.ipswitch.com](http://www.ipswitch.com)

## Voice Over Packet

Belcore in Morristown, N.J., has announced it's launching an industrywide initiative to develop a list of requirements for voice-over-packet network designs. Belcore said it isn't trying to establish standards but to work with a variety of carriers to provide interoperability.

## Euro Conversion

Document manager vendor JetForm Corp. in Ottawa last week said its Central server software and Design tools can perform euro currency conversions during printing, with no changes to existing applications. The software is available now. Pricing starts at \$5,995, depending on configuration of servers. [www.jetform.com](http://www.jetform.com)

## Who's Buying What

NEBRASKA METHODIST HEALTH SYSTEMS INC. recently bought AMERICAN MANAGEMENT SYSTEMS INC.'s health care document management and workflow application, RecordLink, to expand its Filament Corp. document management system. CASE WESTERN RESERVE UNIVERSITY last week said it will deploy more than 200 networked multifunction copiers from CANON U.S.A. INC. and about 8,000 user seats of document-scanning and distribution software from SIMPLIFY DEVELOPMENT CORP. in Nashua, N.H., for digital document sharing.

## FRANKLY SPEAKING

## Just a number

SOMETIMES YOU CAN take a good thing too far. Case in point: Intel's plan to put an electronically readable serial number in every CPU it makes, starting when the Pentium III rolls out in April, could actually make things a little easier for corporate IT shops. But will that CPU ID aid electronic commerce, as Intel suggests? Forget it. Will it suddenly expose users to being stalked electronically across the Web, as privacy advocates fear? Get a life. No, it's not heaven for Web business or hell for privacy. It's just a number.

In case you missed the hrouhaha, privacy advocates went ballistic last week after Intel announced the CPU IDs (see story, page 14). Intel trumpeted this new feature as a boon to E-commerce, because Web browsers could transmit the processor's ID number to confirm where an online order was coming from.

But privacy gurus howled that the oew Intel chips would broadcast that electronic ID everywhere a user went on the Internet. They threatened a boycott — a ooisy, very public boycott. Intel, in oo mood for a fight, promised to turn off the CPU ID feature by default.

Maybe it's just too much of a good thing. A CPU serial number is good. But an easy-to-steal, easy-to-spoof serial number won't help anyone's E-commerce security.

Look, if a user's browser provides the CPU ID number, any Web site can collect it. That means any unsavory Web-site owner can hijack that CPU ID and use it with a specially modified browser to impersonate the original user. Result: instant online identity theft. As an E-commerce "security" feature, CPU ID is utterly uselessworthy.

Then again, it's not the horrifying, world-ending threat that privacy mavens make it out to be, either. "It changes fundamentally the assumption people have that they are anonymous when their computers are connected to the Internet," says Jason Catlett, president of JunkBusters Inc., which, along with Privacy International and the Elec-

tronic Privacy Information Center, threatened Intel with a boycott last week.

Hogwash. Nobody is anonymous on the Web — except maybe hackers who carefully cover their tracks. Web servers log each user's IP address. Most users accept "cookies" specifically designed to identify them in the future, and cheerfully type in personal information without hesitation.

Internet privacy is already rare, and Web anonymity coexistent. As a threat, CPU ID is just one more drop in the bucket.

All of which is really beside the point. What makes Intel's new CPU serial number a good thing is that it's just that — a serial number. Sure, it may be a hust in E-commerce, but it still can be handy for keeping track of PCs inside a corporate IT shop.

So turn on the CPU ID feature to log PCs when they arrive. Use it to track them as they're moved, reassigned and reconfigured inside your organization. Keep it for identifying stolen PCs if they're recovered and figuring out the speed and capabilities of a CPU. Even use it to check which chips need replacing, if Intel ever reprises its infamous Pentium floating-point fiasco.

And the rest of the time, turn it off. After all, you don't want too much of a good thing — do you?

FRANK HAYES, Computerworld's staff columnist, has covered computing for 20 years and only accepts chocolate chip cookies. His Internet address is [frank\\_hayes@computerworld.com](mailto:frank_hayes@computerworld.com).

Privacy? Bah.  
E-commerce?  
Yawn. Treat  
CPU ID as a  
serial number.



## Leaders' Choice Award Winners

### OFFICE SUITES

- Microsoft Office\*

### OPEN SYSTEMS DBMS

- Oracle

### CORPORATE SERVERS

- Hewlett-Packard HP 9000\*
- IBM AS/400\*
- Dell PowerEdge
- HP Net Server
- IBM RS/6000
- Compaq ProLiant

### GROUPWARE/MESSAGING

- Lotus Notes
- Novell GroupWise

### BROWSERS

- Netscape Navigator\*

### DESKTOP APPLICATIONS

- Microsoft Word
- Netscape Communicator
- Microsoft Excel
- Adobe Photoshop

### PORTABLE COMPUTERS

- 3Com Palm
- Gateway Solo
- Dell Latitude\*
- IBM ThinkPad

### OPERATING SYSTEMS

- Novell NetWare

### DESKTOP COMPUTERS

- Dell OptiPlex\*

\* Repeat winner

**V**ALUE, LIKE BEAUTY, is in the eye of the beholder. So for IT buyers, value is the lowest-priced product. Value is low cost of ownership. Value is ease of use and ease of management. Or value can be the simple fact that the darn thing works at all, say *Computerworld* readers surveyed for our second annual IT Leaders' Choice Awards.

To get a real-world view of the top products, we asked readers to identify the information technology offerings that return the greatest value to their organizations. The 1,250 respondents named a variety of products. Only 20, however, scored high enough to earn top honors.

We also asked the survey participants to tell us why they voted for the products they said gave them exceptional value. The myriad answers made it clear that value is whatever matters

to the individual. To one user, value might be a money issue — low price. To another, value comes from a combination of low price, good performance and reliability. We've listed comments from the score sheets and follow-up interviews with users and industry analysts.

One trend that does take shape, however, is the belief that hardware provides greater value than software. Half of this year's 20 top winners came from hardware categories (hardware products comprised nine of last year's 16 winners). However, those 10 winners (six in the corporate server area) represented only three of the 16 categories in the survey. In several software categories — application development tools, LAN management software, enterprise systems management software, Web server software and Web development tools — no products scored well enough to win the Leaders' Choice Award.

## OPEN SYSTEMS DBMS

It's a real winner. It works well, and it's flexible. Also, Oracle Developer 2000 has been a real good enabler for us to develop systems quickly."

ORACLE USER JOHN ZAMB, CIO,  
LORNEY INC., TOLEDO, OHIO

COMPANY PRODUCT	NUMBER OF USERS	MEAN SCORE
Oracle	1,250	4.5
Microsoft	1,250	4.2
IBM	1,250	4.1

Source: *Computerworld*

## OFFICE SUITES

I try to minimize the number of disparate parts we have. So if I have desktop machines running Windows 95 and Windows 98, having an application tool kit from the same vendor is a wise move. It's a simple fact of life. I'm in the glass, china and flatware business, not the software business."

OFFICE USER JOHN ZAMB

"Once you learn how to integrate all the programs, the possibilities are endless."

OFFICE USER IN REAL ESTATE

"Relatively easy for users to learn basic functionality."

OFFICE USER IN THE WHOLESALE/RETAIL SECTOR

# IT Leader

Computerworld readers put IT products

### How We Did It

In an effort to improve the response rate, we mailed three versions of a questionnaire, with each one going to 2,000 Computerworld subscribers.

The three forms discussed different technology sectors. Respondents were asked to rate the products that they installed or upgraded in the past year in terms of how much value the products returned to their organization.

All survey recipients also were asked to name the single product that provided the most exceptional value.

To help respondents understand the scope of the categories and to keep data collection consistent, we worked with industry analysts and other experts to provide respondents with lists of representative products for those categories.

We also encouraged respondents to write in the names of products they use that weren't listed.

Results were tabulated for the 1,250

users who said they're responsible for specifying, recommending, approving or acquiring IT products.

Mean scores were based on a five-point scale in which 1 equaled basic value and 5 equaled exceptional value. Products or product lines were declared winners if they were rated by at least 10% of the respondents in their category and they recorded a mean score of 3.8 or higher.

Honorable Mentions were given to products and product lines that received at least 5% of the citations in their category and mean scores of at least 3.75.

Unsung Hero awards were given to products that showed a small but loyal core of users. They had to be mentioned by at least 1% of all respondents (at least 13 users) and receive perfect scores of 5 from 25% of their users. Only products evaluated by 10% of the users in the category are listed in the tables that follow.



The IBM AS/400

## CORPORATE SERVERS

The AS/400 is the backbone of our computing environment here. We trust it, we rarely have a problem with it, and we don't have any plans to abandon it."

AS/400 USER KRISTIN FURTELL, MANAGER OF THE TECHNOLOGY GROUP, PNC BANK NA, PITTSBURGH

"For the most part, servers have licked the problems they've historically had. They're reliable, they're scalable, and because of pricing pressures, they've all become price-and-performance-competitive. Servers are really becoming more of a commodity, where the differentiation between them is very low. IT people are spending much more time on complex issues like component architectures and managing a distributed architecture. But the servers themselves are pretty tame these days."

ANALYST JOHN OLTSIK, FORMER RESEARCH INC., CAMBRIDGE, MASS.

COMPANY PRODUCT	NUMBER OF USERS	MEAN SCORE
IBM AS/400	10	4.8
IBM RS/6000	8	4.5
HP 3000	7	4.2
Compaq Alpha	6	4.0
Sun Microsystems Ultra	5	3.8
Microsoft SQL Server	4	3.5
Oracle	3	3.2
Sybase	2	3.0
Microsoft Access	1	2.8

Honorable Mentions: IBM S/390, Sun Microsystems Ultra  
Unsung Heroes: HP 3000, Compaq Alpha  
Over 400 users

"Dell PowerEdge servers are excellent products with no downtime."  
DELL USER IN GOVERNMENT

"With 3-year-old RS/6000s, we've had no downtime."  
IBM RS/6000 USER IN THE HEALTH CARE INDUSTRY

Continued on page 72



"Ease of use; easy to install and support. Plethora of options."  
OFFICE USER IN COMMUNICATIONS SECTOR

COMPANY PRODUCT	NUMBER OF USERS	MEAN SCORE
Microsoft Office 97	10	4.8
Microsoft Word	8	4.5
Microsoft Excel	7	4.2
Microsoft PowerPoint	6	4.0
Microsoft Access	5	3.8
Microsoft Outlook	4	3.5
Microsoft Internet Explorer	3	3.2
Microsoft Windows	2	3.0
Microsoft Windows NT	1	2.8

"It keeps our offices going."  
OFFICE USER IN THE FINANCIAL SECTOR

"Microsoft Office is what users are probably using most of the time. If business partners are using it and they are not, that is a big problem, which is why Office becomes so valuable."  
ANALYST ROB ENDREKE AT OGA INFORMATION GROUP INC. IN SANTA CLARA, CALIF.

s to a real-world test By James Connolly

# Users' Choice





## OPERATING SYSTEMS

Rock-solid. It's here now, and it's maintainable."

NETWARE USER IN RETAIL SECTOR

"The directory, the features, GroupWise, third-party support."

NETWARE USER IN MANUFACTURING

"Terrific operating system for very low cost for Web service."

RED HAT LINUX USER IN BUSINESS SERVICES

"Great intranet Web server. Easy to install. Easy to use. Cheap."

RED HAT LINUX USER IN AGRICULTURE



"Exceptional stability; low cost; very reliable, efficient and scalable."

RED HAT LINUX USER  
AT A NONPROFIT ORGANIZATION



## Love/Hate Relationships

Products that received votes for most EXCEPTIONAL VALUE

Microsoft Office/Office 97	92
Microsoft Outlook	31
Lotus Notes	30
Microsoft Word	27
Microsoft NT Server	20
Microsoft Exchange	19
IBM AS/400	18
Microsoft Access	18

Base: 307 respondents

Products users said they will NEVER BUY AGAIN

Microsoft Internet Explorer	13
Corel WordPerfect	10
IBM ValueLine	6
Novell NetWare	7
Apple Macintosh	6
Microsoft Windows 95	6
Microsoft Windows 98	6
WinBook XL notebooks	6

Base: 302 respondents

## PORTABLE COMPUTERS/LAPTOPS

We analyzed that platform initially when we started giving in to the laptop business.

... Of course, a lot of our users select other vendors as well, but it provided a platform that was easily recognized, i.e., the IBM product name. ... It also provided what I thought was a fairly decent product ... albeit some people considered it somewhat overpriced. But I still use an IBM ThinkPad, so that says a little bit about how I feel about the product.

IBM USER DAVID DONALDSON, DATA PROCESSING COORDINATOR, CITY OF MOBILE, ALA.

"Dell Latitude support is superb. It's a treat, performance-wise. Easy upgrade. Easy migration."

DELL USER CHRIS HUSMANUEL, NETWORK ENGINEER, MINE SAFETY APPLIANCE CO., SPARKS, MD.

"They are by far the most reliable notebooks we've used. Technically, the IBMs worked as advertised; we got what we thought we were buying. But the Dells not only bring what I like to call technical soundness to another level, but the way you deal with the vendor is how you would ask to deal with the vendor if you were able directly. Price has little to do with my satisfaction of these systems — I don't think there is that much of a difference. I'm just more confident that the vendor is better able to meet our needs."

DELL USER RICK REVEKA, IT MANAGER, WELDON'S LAUNDRY, MICH.

"My entire work life rides on my laptop."

DELL USER IN A SERVICES COMPANY

"Easy to configure. Very reliable."

GATEWAY USER IN A UTILITY

"Compared to the competition, the features vs. price is exceptional, and service is very good."

DELL USER IN MANUFACTURING

"The Palm stands alone in that it makes a promise and it delivers on it. One of the nice things about the Palm is you know what it does, and it does everything it says it does, and it just works. There's nothing complicated, nothing difficult — and away you go."

"[The Solo's ranking is] interesting because Gateway's market share is relatively small. Far fewer people have Gateways, and if they have a Gateway, they're more likely to have it because they made an active decision to go out and buy it. With the major manufacturers — Compaq, IBM, Toshiba — everybody's going to have those, so everybody's going to respond on them. In many cases, they're not necessarily going to like them."

"It's nice to see IBM doing well. ... It's clear they're getting some payback from their [ThinkPad] 600 and 650 designs."

HARTIN REYNOLDS ON THINKPAD



Uninstallable Software: Apple PowerBook

Base: 405 votes



The Gateway Solo



The 3Com Palm



## CONFERENCE & EXPO

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Senior Vice President of Worldwide Marketing, Oracle  
Creator of Linux



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THE 701 MARKED THE END OF IBM'S SUCCESSFUL CALCULATOR DESIGN

# An Empire Takes Hold

BY MARY BRANDEL

**I**BM'S DECADES-LONG reign over the computer industry began in 1953. It all started with the 701, also known as the Defense Calculator. But it wasn't an easy birth.

In the early '50s, IBM was looking for a way to contribute to the war effort, but building computers wasn't its first choice. "Old man Watson didn't like the idea of going into a new industry when he was doing very well with the punch-card business," says Jan Lee, a professor of computer science at Virginia Polytechnic Institute and State University.

Watson's son, Thomas Watson Jr., who had learned about the potential of the new field of electronics during his service in World War II, eventually persuaded company management to explore computers. The name "Defense Calculator" was part of that strategy. It made the computer seem like a special-purpose military contract and appealed to management's patriotism.

But it was a lesser-known IBMer named Cuthbert Hurd who really brought the 701 to the world.

Hurd — who died in 1996 — was the one who persuaded General Electric Co., Los Alamos and about a dozen other organizations to purchase 701s, "even though it cost what seemed to be an enormous amount — over \$1 million," according to former IBM staffer John Backus, who helped develop the 701's successor, the 704. The 701 was also rentable at \$15,000 per month, which was the equivalent of the salary of about 30 employees, according to IBM historian Emerson Pugh, who wrote *IBM's Early Computers* (MIT Press, 1986).

The 701 was introduced during the United Nations' first police action, the Korean conflict.

Just as soon as the 701 was introduced, Backus and the rest of the Applied Science team set to work on improvements. Also on the team was Gene Amdahl, who would later found Amdahl Computer Corp. in 1970.

One of those improvements, created by Backus, was called "speedcoding," which significantly simplified the task of programming for the 701. "Speedcoding took the 701, which was a fixed-point, single-address computer without index registers, and made it

look like a floating-point, free-address computer with index registers," Backus says. In other words, programmers no longer had to tangle with the binary code that was the true "machine language," he says.

Most 701 programmers used speedcoding, although it exacted a price. "The synthetic computer ran a lot slower because it had to do all the extra work of simulating floating-point and index registers," Backus says.

Lee says there are still some aspects of speedcoding in things we do today. It was the predecessor of several similar systems in the 1950s and '60s, most of which have been replaced by high-level languages such as Cobol, Still, C, and C++ are still very machine-specific and are the modern versions of speedcoding.

1953 also saw the first practical use of magnetic core memory, a technology that also ushered in the first practical use of random-access memory, or RAM — though it was a non-IBM pioneer who brought it to life on a different computer in 1953. That computer was the Whirlwind, developed by Jay Forrester and his team at MIT.

Magnetic core memory — which uses an electric current

to store data bits on two-dimensional magnetic iron cores — dates to the 1940s.

It was Forrester who came up with the idea of placing the cores onto a three-dimensional wire grid, thus enabling random — rather than serial — access. So not only was mag-

netic core memory faster, but it was also smaller, more reliable and more environmentally sound than its predecessors. With other types of memory, everything was lost when the computer was shut off.

In the 1950s, however, magnetic core memory was expensive to manufacture — it cost \$1 per bit. It was also fragile and had to be refrigerated to run properly.

Still, it revolutionized the computer industry. By the end of the 1950s, "everyone was using core memory," according to Lee. "It was scooped up very quickly — IBM did nothing but manufacture magnetic core memory in its Poughkeepsie, N.Y., facility."

To fact, magnetic core memory was used right up until the late 1960s, when semiconductor memory took over. ▀

Brandel is a writer and editor in Norfolk, Mass. Her E-mail address is brandel@cwtv.com.

## The Times:

**March:** Josef Stalin, premier of the U.S.S.R., dies.

**March:** The U.S. Department of Health, Education and Welfare is created.

**April:** Francis Crick and James Watson discover the structure (double helix) and function of DNA.

**May:** Edmund Hillary and Tenzing Norgay climb Mt. Everest.

**May:** Thirteen women, the first ever admitted, graduate from Harvard Law School.

**June:** Julius and Ethel Rosenberg are executed as Soviet spies.

**July:** Armistice is signed with North Korea; 38th parallel established.

**August:** The Soviet Union announces that it has detonated a hydrogen bomb.

**September:** The Allies form West Germany as an independent state.

**September:** Sen. John F. Kennedy marries Jacqueline Bouvier.

## Technology Advances:

**Burroughs Corp.** installs the Universal Digital Electronic Calculator at Wayne State University in Detroit.

**IBM and Remington Rand** are the market leaders.

**Remington Rand** develops the first high-speed printer (600 lines of 120 character/min.).

## Born in 1953:

• **Paul Allen**, Microsoft co-founder

• **Richard Stallman**, hacker and activist, founder of GNU and the Free Software Foundation

## Other Notables:

**Best Picture:** From *Here to Eternity*

**Top Song:** "Theme Song from Moulin Rouge" — Percy Faith and His Orchestra

**Number of women in the workforce:** 19,382,000

**Total number in the workforce:** 63,065,000



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# YIN & YANG

The Washington IT job market may be a study in contrasts, but opportunities are everywhere

BY EMILY LEINFUSS

**B**EFORE William A. Jones settled into his job as a computer specialist at the Federal Emergency Management Agency, he was a "Beltway bandit." He was constantly changing positions and jobs up and down the Virginia corridor, in both the public and private sectors. "Job stability is better inside [the government]," Jones says. The trade-off for that stability — as if you couldn't guess — is better pay on the outside.

The Greater Washington region's job market for information technology workers can be divided into separate worlds: "inside" — the static-but-secure federal government agencies and nonprofit organizations; and "outside" — the rapidly growing private sector, which includes consulting firms and high-tech companies. The job market is also divided geographically, with one high-tech corridor in Northern Virginia and another in Maryland.

But whatever side of the fence you're on, it's a buyer's market for IT talent. The skills in demand run the gamut, both inside and outside. Inside, Jones sees a strong call for software and networking engineers and computer specialists. Outside, experts say there's a demand for profes-

sionals who have expertise in developing object-oriented and relational databases, applications developers who can handle the latest versions of Visual Basic and Visual C++, and people with experience in three- and four-tier client/server development.

The Chinese believe the yin and yang make for a world of mutually dependent opposites. It helps to keep this in mind when you're looking at the area job market because there are pros and cons to working and living here.

#### Washington's Pros

■ **Money:** "Certainly the biggest positive element for someone looking for a job in the D.C. area is the ability to command a high salary going in," says Skip Goodwillie, branch manager at Consultix,

a Washington IT recruitment firm. Signing bonuses, referral fees and extra vacation time sweeten the pot.

■ **Regional growth:** The area's robust market expands farther into Northern Virginia and Maryland each year. "The economy here is very good. There are multiple sections for computer jobs in the Sunday Washington Post, and more and more every week," says Stephen Roberts, CIO at Amtrak in Washington. "The Washington area is being described as 'Silicon Valley East' because of all the new companies in Internet and telecommunications services and product development," says Tom Carter, a manager at the search firm Quest International in Washington.

■ **Career development:** The *Places Rated Almanac* recently selected Greater Washington as the No. 1 place to start a career. Getting appropriate training and advancing in the chosen direction is encouraged here, says Brad Cahn, an associate developer at Cambridge Consulting Corp. in Washington. Working for a systems integration firm as a consultant offers a lot of opportunity. "We are encour-

aged to try different things, to move around and acquire new skills — to really grow as a consultant and an IS professional," Cahn says. He also notes that the area has excellent colleges that offer master's degree programs and continuing education for IT business professionals.

#### Washington's Cons

■ **Too many choices:** The negative side of a strong job market is that there may be too many options. Changing jobs consistently can hurt an IT career. With the competition for talent, Goodwillie admits that recruiters like him can mentally poison job seekers to within an inch of their sanity. Also, there can be so many job choices that it's difficult to find the real opportunities.

■ **Suburban sprawl:** If fast-paced city life is for you, Washington can provide the goods. But more and more companies are moving out to the suburbs, and their employees must move ever farther away from the city. On a positive note, it's possible to buy a house for a price on par with salaries. "The cost of living is high, but the salaries are also large. It balances out," says My Duyen Pham, a computer specialist at the Library of Congress in Washington.

■ **Too many lawyers:** The D.C. area is ground zero for attorneys and legislators cracking bad lawyer jokes and wearing conservative suits. But even that environment can offer opportunities for high-tech workers. Ask Cosetta Brickard, president of Ten — The Employment Network Inc. in Washington. Her search firm focuses almost exclusively on the legal market, which, like

everything else in Washington, has a dual nature. The positive aspect is that law firms have deep pockets. And one of the few things an attorney will respect is the intelligence of an IT person's ideas, she says. The downside, Brickard says, is that once they have you, they take your soul. "These lawyers want 20- to 24-hour attendance to systems. There isn't a lot of slack in litigation," she says. ■

Leinfuss is a freelance writer in Sarasota, Fla.

#### MORE ONLINE

Explore the Washington area and its job opportunities online:

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<http://dc.computerworld.com/>  
Matches computer job-seekers and their skills via recruiting firms in the Washington area.

##### WebJohn USA

[www.webjohnusa.com/dc](http://www.webjohnusa.com/dc)  
Lists Web savvy candidates and recruiters — and even offers to match you up romantically if you're single.

##### Washington, D.C.

Chamber of Commerce  
[www.dccchamber.org](http://www.dccchamber.org)  
Offers information for visitors on the business climate of the area.

##### First Magnitude International

[www.firstmagnitude.com](http://www.firstmagnitude.com)  
Regional career guide which covers jobs in the Washington area's private sector. Categorized in alphabetical order by industry, location and jobs available.

##### Potomac KnowledgeWay Project

[www.knowledgeway.org/](http://www.knowledgeway.org/)  
Studies and promotes the information and communications world of Greater Washington.

#### JUST THE FACTS

### Washington-Area Unemployment Figures

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2.3%	Intermediate Suburbs
2.9%	Greater D.C. Area
4.1%	U.S. Overall

SOURCE: DEPARTMENT OF LABOR, BUREAU OF ECONOMIC ANALYSIS, WASHINGTON, DC

### If They're Not Working For Uncle Sam

Top private-sector companies (ranked by number of employees)

- **Washington Post**
- **Potomac Electric Power Co.**
- **Fannie Mae**
- **Anderson Consulting**
- **Bios Croci/Wide World**

SOURCE: DEPARTMENT OF LABOR, BUREAU OF ECONOMIC ANALYSIS, WASHINGTON, DC



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Travel may be required. Salary DOE. Send resume to A/E 21281-7 Bm, Patty Michaels, 21200 East Grand Avenue, #1, Englewood, CO 80155. Please indicate specific site and location of job for which you are applying on your application letter.

#### Programmer Analyst (Micro)

##### Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business financial banking, manufacturing and other commercial business applications.

Requires a multi-faceted professional with extensive experience in the design, development, testing, integration, maintenance and support of integrated client-server based systems for business financial banking, manufacturing and other commercial business applications.

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Visit the HPU web site at <http://www.hpu.edu> for Equal Opportunity Employer

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• Senior Consultant  
• Senior Programmer Analyst  
• Consultant  
• Project Manager

• Lead Programmer Analyst  
• Senior Project Director

#### Connecticut

• Lead Programmer Analyst  
• Senior Consultant

Requires at least a bachelor's degree or equivalent in Computer Science Engineering, Business or related fields plus relevant work experience. A Master's degree is desirable.

Travel may be required. Salary DOE. Send resume to A/E 21281-7 Bm, Patty Michaels, 21200 East Grand Avenue, #1, Englewood, CO 80155. Please indicate specific site and location of job for which you are applying on your application letter.

#### Senior Software Engineer

Senior project lead with two years industry experience to design, develop, and implement software applications, using C++, SDA, and UNIX. Job requirements: Master's degree or Equivalent and two years experience relocation to client sites.

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Fran Quittel

*Nationally Recognized Career Expert and  
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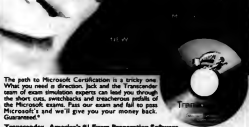
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## WEEK IN STOCKS

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PERCENT		PERCENT	
Ascomp Systems Inc.	45.1	Security Dynamics	25.0
Checkflo (HI)	39.9	Edify Corp.	25.0
E-Trade Group Inc.	36.4	PeopleSoft Inc.	25.0
Excite Inc. (HI)	30.0	Open Text Corp.	25.0
ISI Logic	26.4	Syngene Inc.	25.0
Uniphase (HI)	26.4	Sequent Computer Systems	25.0
Infoseek	25.2	Mastegroup Group Inc.	25.0
Gateway 2000 Inc. (HI)	24.8	EDS Systems	25.0
DOLLAR		DOLLAR	
Yahoo! Inc.	73.20	AmunixCom	-0.40
America Online (HI)	31.05	EDS Systems	-0.23
E-Trade Group Inc.	29.00	Security Dynamics	-0.20
Excite Inc. (HI)	27.94	PeopleSoft Inc.	-0.20
Ashnet Corp.	20.01	Red Soft	-0.10
Uniphase (HI)	18.20	CompuLink	-0.10
Lyon Inc.	16.44	Open Text Corp.	-0.10
Infoseek	15.10	Hic Software	-0.10

## WHEN IT'S 'SEXY' TO BE TECHIE

Hopes of Internet IPOs draw lots of queries

BY SHARON MACIEL

**I**NTERNET MARKETING specialist Keith Butler remembers the day when he'd explain what he did for a living, and "people's eyes would glaze over after five words."

No longer.

In these times of skyrocketing Internet stocks, working at an online retailer suddenly carries a lot of cachet. "I had a recent occasion where the room got kind of quiet," says Butler, executive director of marketing and merchandising at Office Depot Inc. (NYSE:ODP) online venture, OfficeDepot.com in San Francisco. "It's sexy."

"I am much more popular with my friends at cocktail parties," laughed Steven Golden, chairman and CEO at Cookings.com Inc., an Internet couponing firm in Chicago with about 60 major national accounts. "It's funny. You do get different attention now."

That includes calls from people he hasn't spoken to in a while. Almost all eventually ask the question now swirling around privately held Internet companies: Will they offer stock to the public?

"I don't think any day goes by that people don't ask when Garden Escape [Inc.] is going public," said Cliff Sharples, president and CEO of the Austin, Texas-based site.

His standard answer: "No plans at this time."

Being seen as an insider also can have disadvantages. A public relations executive at one Web retailer, who asked not to be identified, said his father asked for advice on buying a certain Internet stock last month.

"I told him 'No, the bubble is going to burst,'" he recalled.

Instead, the stock soared and his father called back a month later to complain. "I told him, 'I'm not your stockbroker. I'm your son.'"

Next time when he says "no comment," you'll know why.

Internet executives say they're trying to stay levelheaded about the dizzying heights of "dot-com" stocks. "You can't get caught up in it," said Elaine Rubin, vice chairman of the trade group Shop.org. "We have businesses to run."

Still, Wall Street's validation of the industry's has been gratifying to its pioneers — and not just financially. "People who thought we were insane to leave our jobs three years ago to start a gardening company online are now more understanding," Sharples said.

"We are looking a lot smarter than people thought we were three years ago," he added.

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KEY: ORO - New annual high reached in period.  
 NEW - New annual high reached in period.  
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## NEW Y2K CAREERS

Even a partial meltdown of the world's computer systems on Jan. 1, 2000, could result in the emergence of new job categories.

**Bartering agents:** The government is printing extra money, but it may not be enough if financial panic occurs. A cash shortage could bring back barter for commercial transactions.

**Private security officers:** Year 2000 disorder could result in a breakdown of law enforcement. People may need to fend for themselves or hire freelance security officers.

**Survivalist consultants:** If year 2000 glitches cause power outages, food shortages and civil unrest, most people will need help learning survival skills.

**Y2K Realtors:** Cities may be paralyzed by faulty security systems, elevators, heaters, traffic lights and commuter trains. This could lead to a mass exodus to the countryside.

**Y2K therapists:** The sudden loss of power and high-tech gadgetry could be very stressful. People under enormous pressure to fix the problem may need counseling.

**Alternative power providers:** If the power grid fails in the dead of winter, there will be a great demand for specialists in solar energy, gas generators and coal mining.

## INSIDE LINES

### FAMILY MATTERS

Microsoft Vice President Paul Maritz, trying to convince contract trial judge Thomas Penfield Jackson last week that the Linux operating system threatens Microsoft's desktop dominance, said he had good reason to be concerned. Maritz, a college freshman, recently got the open-source operating system up and running in 30 minutes on a home PC. "There was probably an element of

him doing it just to annoy me," Maritz said with a grin.

### EURO FILES

Snaps related to last month's introduction of the euro, the new common currency for 11 European nations, keep popping up. For example, building supplies maker Owens Corning faced "a small technical glitch" sending customer invoices between Belgium and France, said Michael Radcliff, vice president of the firm's information group. Things could have been much worse. People in Marseilles, France, noted early in January when a big French bank wouldn't let them withdraw cash for three days.

### TURNING TEST

The search for a computer program that converts like a human being found a winner in Australia last month - sort of. This year's \$2,000 Lovelace Prize was won by Georgia programmer Robby Gardner, Gardner's program, Albert, converted 17% of the judges' votes. A human being, beating out five other programs. Judges thought John Reeves,

the most convincing human in the competition, was the real thing only 6% of the time.

### OVERHEARD

Clifford Stoll, author of *The Cuckoo's Egg* on glorifying high-tech work while downplaying the value of other jobs. "If we let only the dots and droids become droids, then neither our programs nor our jobs are going to hold much water." Dave Duhon, CEO of PeopleSoft, on last week's surprise layoff of 430 workers: "I believe they'll be leaving with a positive view of PeopleSoft - as positive a view as you can have when you go through something like this."

### WHAT'S GOOD ENOUGH FOR HIS CUSTOMERS...

According to Cisco Systems CEO John Chambers, 72% of his customers' orders come in through Cisco's electronic commerce site ([www.cisco.com](http://www.cisco.com)). The \$200 million it saved made him a true believer. You can send news tips and submit to news editor Patricia Keefe any way you like E-mail her at [patricia.keefe@computerworld.com](mailto:patricia.keefe@computerworld.com) or call (508) 820-1183.

# What Your iMac Flavor Says About You

**TANGERINE:** The message here is "radiant and hot." Bright oranges are seen as gregarious, fun-loving and high-energy.

**LIME:** It's "natural and pleasant." Elemen says green "generally imparts a refreshing, cool and collected feel."

In an industry known for beige, gray and black boxes, Apple Computer's colorful new iMac models offer consumers the opportunity to express themselves and add some personality to their work spaces, says color consultant Leatrice Eiseman, executive director of the Pantone Color Institute in Carlstadt, N.J., and author of *Colors for Your Every Mood*.

**GRAPE:** You have "passion and magic." Purple - part tranquil blue and part exciting red - is the color for artists, designers and performers.

**BLUEBERRY:** It says "sensitivity and truth." Blue is tender, soothing, cool, genuine, serene and comfortable.

**STRAWBERRY:** A sign of "power and strength." Throughout history, red has signified excitement, dynamism, danger and passion.

## The Fifth Wave



Right now... Crime.com. It says the well-run small criminal concern should have no more than nine scouts, six henchmen and four stooges. Right now, I think we're gear happy.

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## CallPilot



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How many inboxes are there on your desk? A voice mailbox, an e-mail inbox, a folder to hold incoming faxes, and even the standard inbox for U.S. postal mail — that means four separate inboxes, and that's assuming you only have a single phone line and a single e-mail address. And what response do messages from each of these inboxes require from you? A voice message asking for an image to be e-mailed back, an e-mail containing a hyperlink or an attached Word file, a fax asking for a phone call response — even messages that only directly employ a single medium often require multimedia responses. The receiver must change mediums, take notes, and transfer information before making a reply.

This is the argument for unified messaging. It's the same old argument — a single inbox that accepts and allows responses to all forms of messages: fax, voice, e-mail. All three of these media types have one thing in common. At one point, each of them is conveyed in an electronic format. This commonality — which is the reason why standard postal mail is excluded from the list — is what enables unified messaging not only possible, but as inevitable as tape drive backups and dial-up Internet access (both of which use a previously existing

electronic medium in a manner for which it was not originally intended).

So why hasn't unified messaging been the "killer app" that everyone has promised?

The answer to this question explains why we have chosen Nortel's CallPilot for an Editors' Choice award this issue. Bringing together such varied electronic formats as fax, voice, and e-mail is a huge task, and that is only part of the challenge that unified messaging

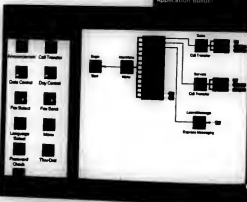
faces. There are also the ever-present issues of ease-of-use, convenience, total cost, and reliability. In developing CallPilot, Nortel has sought to provide a truly complete unified messaging service — they conform to e-mail standards like IMAP, MIME, and LDAP, as well as using Voice Profile for Internet Mail (VPIM) for enabling Web-based fax and voice messaging — and they have done it in a user-friendly, cost-effective package.

Among CallPilot's many features are the ability to leave intentional voice messages (messages left intention-

ally and directly in voice mail rather than going to voice mail only after a phone voicemail answered) to deliver faxes with a voice attachment, and to respond to many spoken commands using built-in speech recognition capabilities. Instead of simply replicating current message retrieval abilities in a single medium, CallPilot employs the attributes of each independent medium and makes them all essentially interchangeable. This is truly unified messaging, or what might be termed "amalgamated" messaging.

The message sender and recipient are no longer locked into standard formats. Instead, the formats are melded together, so that a voice explanation might accompany a faxed document, or an e-mail might provide more specifics on flesh out information mentioned only in passing on a voice message. By combining the media types, and by doing so in a very usable package, Nortel's CallPilot represents one of the most innovative and promising unified messaging products we have seen. ■

Figure 1: Nortel's CallPilot Application Builder



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We were going to run an ad touting our new CallPilot messaging system. But CTI magazine beat us to the punch.

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